

T W E N T Y
E S S A Y S

K

O N

LITERARY AND PHILOSOPHICAL

S U B J E C T S.

PRINTED BY RICHARD WHITE,

Number TWENTY,

DAME-STREET, DUBLIN.

M.DCC.XCI.

T W E N T Y

E S S A Y S

ON

LITERARY AND PHILOSOPHICAL

S E C T S



PRINTED BY RICHARD WHITE,

NUMBER TWENTY,

DAMM-STREET, DUBLIN.

MDCCCXII

CONTENTS.

	Page
ON the Advantages of Literature and Philosophy in general, and especially on the Consistency of Literary and Philosophical with Commercial Pursuits. By Thomas Henry, F. R. S.	1
On the Nature and essential Characters of Poetry, as distinguished from Prose. By Thomas Barnes, D.D.	20
On the Affinity subsisting between the Arts, with a Plan for promoting and extending Manufactures, by encouraging those Arts on which Manufactures principally depend. By Thomas Barnes, D.D.	33
An Essay on the Pleasure which the Mind receives from the Exercise of its Faculties, and that of Taste in particular. By Charles de Polier, Esq.	50
On the Pleasure which the Mind in many Cases receives from contemplating Scenes of Distress. By T. Barnes, D.D.	71
Observations on Blindness, and on the Employment of the other Senses to supply the Loss of Sight. By Mr. Bew	84

C O N T E N T S.

	Page
An Attempt to shew that a Taste for the Beauties of Nature and the Fine Arts has no Influence favourable to Morals. By the Rev. Samuel Hall, A. M.	106
Remarks on the Knowledge of the Ancients. By William Falconer, M.D. F.R.S.	121
An Enquiry concerning the Influence of the Sce- nery of a Country on the Manners of its Inha- bitants. By William Falconer, M.D. F.R.S.	130
Thoughts on the Style and Taste of Gardening among the Ancients. By William Falconer, M.D. F.R.S. &c.	144
An Essay on the Diversions of Hunting, Shoot- ing, Fishing, &c. considered as compatible with Humanity	168
On the Influence of the Imagination and the Pas- sions upon the Understanding. By the Rev. Thomas Barnes, D. D.	180
On the comparative Merit of the Ancients and Moderns, with respect to the Imitative Arts. By Mr. Thomas Kirshaw	198
A brief Comparison of some of the principal Argu- ments in favour of Public and Private Educa- tion. By Thomas Barnes, D. D.	205
Speculations on the Perceptive Power of Vegeta- bles. By Thomas Percival, M.D. F.R.S. &c. &c.	218
An Essay on Crimes and Punishments. By the Rev. William Turner	233

C O N T E N T S.

	Page
On the Pursuits of Experimental Philosophy. By Thomas Percival, M. D. F. R. S. and S. A. &c. - - -	260
A short Account of an Excursion through the subterraneous Cavern at Paris. By Mr. Tho- mas White, Member of the Royal Medical Society of Edinburgh, &c. &c. in a Letter to his Father - - -	273
On the voluntary Power which the Mind is able to exercise over Bodily Sensation. By Tho- mas Barnes, D. D. - - -	281
A Plan for the Improvement and Extension of Liberal Education in Manchester. By Tho- mas Barnes, D. D. - - -	295

E S S A Y S

CONTENTS

Page	On the Nature of the Imagination, &c. &c. By Thomas Taylor, M.A. F.R.S. and S.A. 180
181	A Short Account of an Experiment through the Instrument of a Camera Obscura. By Mr. John W. &c. &c. of the Royal Society of Edinburgh, &c. &c. in a Letter to his Father. 181
182	On the voluntary Power which the Mind is able to exercise over bodily Sensation. By Thomas Taylor, M.D. 182
183	A Plan for the Improvement and Extension of Liberal Education in Scotland. By Thomas Taylor, D.D. 183

E S S A Y S
O N
LITERARY AND PHILOSOPHICAL
S U B J E C T S.

*On the Advantages of Literature and Philosophy
in general, and especially on the Consistency of
Literary and Philosophical with Commercial
Pursuits. By Thomas Henry, F. R. S.*

*[From Memoirs of the Literary and Philosophical
Society of Manchester.]*

To either India see the merchant fly,
Scar'd at the spectre of pale poverty!—
See him with pains of body, pangs of soul,
Burn thro' the tropic, freeze beneath the pole?
Wilt thou do nothing for a noble end,
Nothing to make philosophy thy friend?
Pope's Imitations of Horace, Epist. I. Book I.

THE pursuit of knowledge, when properly directed, and under due influence, is of the greatest importance to mankind. In proportion as a nation acquires superior degrees of it, her state of civilization advances, and she becomes distinguished from her less enlightened neighbours, by a greater refinement in the manners of

her inhabitants, and a departure from those ferocious vices, which mark the features of savage countries. Vices she will, indeed, still be addicted to, but of a different complexion from those of her more uncultivated days. For, wherever a love of learning and the arts makes any considerable progress, even crimes themselves lose something of their atrociousness, and, though still offensive, are divested of those strong marks of brutality, which generally accompany ignorance. The horrors of war itself are softened: an enemy is treated with humanity and kindness: the milder virtues find admittance amongst the clash of arms; and men, when compelled to hostilities, seek victory, not to *enslave* or destroy, but in the moment of triumph rejoice in opportunities to evince their clemency and generosity to the vanquished foe.

That this picture is not too strongly coloured will appear from an appeal to history. In the earlier ages, we see a conquering army hurling destruction and desolation, murder and rapine around them, and, with unrelenting fury, scarcely distinguishing between friends and enemies. In these more polished times, and the polish may be fairly attributed to the diffusion of learning and philosophy, such cruel excesses are discountenanced and prohibited by the general consent of every civilized people.

Nor are these improvements confined to national manners: those of individuals have been equally benefited. The natural tendency of a cultivation of polite learning, is, to refine the understanding, humanize the soul, enlarge the field of useful knowledge, and facilitate the attainment of the comforts and accommodations of life.

How

How great is the contrast between the characters of the elegant scholar, and the man whose uncultivated mind feels no restraint but those which the laws of his country impose! A taste for polite literature, and the works of nature and of art, is essentially necessary to form the Gentleman, and will always distinguish him more completely from the vulgar, than any advantage he can derive from wealth, dress, or titles. These external decorations, without those refined manners which proceed from a proper study of books and men, serve only to render his ignorance more conspicuous; whereas a man of a polite imagination not only secures himself a favourable reception in the world, but as Mr. Addison observes, "is let into a great many pleasures that the vulgar are not capable of receiving. He can converse with a picture, and find a companion in a statue. He meets with a sweet refreshment in a description, and often feels a greater satisfaction in the prospect of fields and meadows, than another does in the possession. It gives him a kind of property indeed in every thing he sees, and makes the most rude and uncultivated parts of nature administer to his pleasures*."

Affluent circumstances and abundant leisure give the Gentleman great advantages over his inferiors, in the more refined studies. The cold and heavy hand of poverty chills and represses the efforts of genius; wealth cherishes, and, if I may be allowed the metaphor, *manures* and pushes it forward to maturity. Sometimes, indeed, in so rich a soil, weeds will spring, which,

B 2

if

* Spectator, No. 411.

if not timely rooted up, may endanger the safety and health of the nobler plant. But a careful cultivator will exterminate them early, and sedulously prevent their deleterious effects.

The importance of the Gentleman will still rise higher, his mind be enlarged, and his pleasures be increased, if, to the accomplishments of the polite scholar, he add the knowledge of the philosopher, and endeavour with a noble ambition,

Thro' vast immensity to pierce;
See worlds on worlds compose one universe;
Observe how system into system runs,
How other planets circle other suns*.

Descending from this stupendous elevation, he will find this globe, which we inhabit, an ample field for physical enquiries. Besides, that man himself is the proper study of mankind, he will find the whole universe replete with subjects for his contemplation. The air, the ocean, the vegetable and animal creation, the surface of the earth, and her most profound cavities to which human industry has reached, will all supply abundant food for his intellectual powers, furnish him with infinite sources of amusement, shew to his wondering eye

All matter quick and bursting into birth†.

and teach him to admire that wise, that omniscient Being, whose superintending providence inspects and regulates the whole, even the most minute parts of his creation,

And

* Pope's Essay on Man, Ep. I. † Ibid.

And sees with equal eye, as God of all,
A hero perish, or a sparrow fall*.

I believe few will controvert the advantages I have pointed out, as arising to the Gentleman and professionalist, from the study of the Belles Lettres and Philosophy; but I am sorry to say, many are the adversaries we have to encounter, if these arguments be extended to another wealthy class of men—the Merchant and Manufacturer. The commercial man, say they, should confine his knowledge to trade. His counting-house should be his study; his ledger his hourly amusement. Gold and silver are the only metals with which he ought to be acquainted; and of these to know no more than the different coins into which they are formed, and the current price of bullion. For poetry, painting and music, he must have no attachment, no taste for engravings, but those of banks bills, and, if a single philosophical idea should enter his head, these inveighers against knowledge would expect to see his name immediately in the list of bankrupts.

To be serious—So far have these prejudices extended, that many parents entertain the most dismal apprehensions of their sons acquiring a taste for literature, and look on an inclination to natural philosophy as highly dangerous to their progress in trade. Behold, say they, that wealthy manufacturer! Without any knowledge, beyond that of the goodness of his raw materials, and of judging whether his wares were properly fabricated and finished, joined with a tolerable acquaintance with figures, and a most cautious

B 3

prudence,

* Pope's Essay on Man, Ep. I.

prudence, he has amassed an affluent fortune. On the other hand, see that *man of erudition*! Instead of attending to the manufacture of his goods, his time was employed in reading history; instead of keeping his books, and stating his accounts, he was solving problems in Euclid, or making chemical experiments in order to effect new discoveries, when he might have availed himself of those already made, by the labour and at the expence of others. His refined ideas had taught him that suspicion is mean, and his learning and credulity have plunged him into ruin.

These are specious but deceitful representations. That an imprudent young man may, by devoting those hours to philosophical or literary pursuits, which ought to have been given to business, have precipitated himself into poverty and distress, cannot be denied. But the mischief arises, not from a taste for those studies, but from the improper arrangement of time. Want of œconomy in this point is equally, if not more injurious, than in pecuniary matters.

It will be also allowed, that the profession, in which each individual is engaged, should, next to the more important interests of religion, attract and employ his principal attention. But the mind of man, and especially of young men, must be provided with amusements. The young tradesman of fortune has generally many hours of leisure, and if amusements be necessary to soothe the rugged paths of business, shall we choose those which lead to dissipation, to extravagance, to vice, or such as tend to civilize the mind and improve the understanding, by developing the operations of nature, explaining the
nice

nice connection which subsists between the lowest and higher order of beings,

To man's imperial race,
From the green myriads in the peopled grass;

and tracing the hand of Omnipotence through every link of that

Vast chain of being, which from God began,
Nature's ethereal, human, angel, man,
Beast, bird, fish, insect, what no eye can see,
No glass can reach*.

Will not the time he can spare from business be more usefully employed in the study of history, and the reading of our best authors; or at an air pump, an electrical machine, or a microscope, than, as is too often the case with those youths who have not received that culture which their fortunes entitled them to, at the tavern, the gaming table, or the brothel; or, if their minds be not sufficiently active, and passions strong, to impel them to these excesses, in idleness, low company, and mean and degrading pursuits? "There are, indeed, but very few," says an excellent observer of human nature, "who know how to be idle and innocent, or have a relish of any pleasures that are not criminal; every diversion they take is at the expence of some one virtue or another, and their very first step out of business is into vice or folly. A man should endeavour, therefore, to make the sphere of his innocent pleasures as wide as possible, that he may retire into them

B 4

with

* Pope's Essay on Man, Ep. I.

with safety, and find in them such a satisfaction as a wise man would not blush to take."

The arguments, which have hitherto been adduced in favour of commercial men endeavouring to attain liberal knowledge, have been principally confined to those whose parents have already acquired such fortunes as raise their sons above the level of the more necessitous tradesman, in whom a greater degree of assiduity in business is necessary. But, even in this case, if his diligence and application degenerate into an inordinate desire of accumulating wealth, and this *ruling passion* be allowed to *conquer reason*, to suppress every wish of the mind for improving and fitting itself for higher enjoyments in this life, and the participation of still more exalted pleasures in a future state, it then becomes criminal, and ought to be resisted.

But it may be said, that all men are not intended by nature for scholars or philosophers; and that there are stations in life that will not admit of profound study and investigation. Yet there are few whose minds may not receive a bias to some useful research, whereby they may be pleasingly and usefully employed. And we may be bold to assert, that, though it is not in the power of every man to shine as a distinguished literary character, yet there is scarcely any one so meanly situated, as to render some share of learning inconvenient to him; or who will be a worse man, or a worse member of society, by having advanced a few steps higher in the scale of human knowledge.

Nemo adeo ferus est, ut non mitescere possit,
Si modo culturæ patientem commodat aurem*.

It

* Horatii, Epist. I. Lib. 1.

It is one thing to be a *professed* scholar or philosopher, and another, to possess such a degree of information on a subject, as is compatible with our other avocations. To be a *complete* astronomer would almost monopolise the business of a man's life. To procure a *general*, but satisfactory idea of the motions of the planetary system; of the distance of the sun from the earth, and of the yet more immense distance between us and the fixed stars, &c. only a moderate degree of application is requisite.

Among those objects of study which may be recommended to the attention of the young tradesman, some may be considered as ornamental, while others deserve to be classed in a higher rank, with respect to the utility he may expect to receive from the cultivation of them; and of these again, some may be more particularly adapted to some branches of trade than others.

A knowledge of history is an indispensable accomplishment to the opulent tradesman. History has been elegantly and emphatically described by a poet, who is an honour to the age and country in which he writes;

Nature's clear mirror! life's instructive guide!
Her wisdom sour'd by no preceptive pride!
Age from her lesson forms its wisest aim,
And youthful emulation springs to fame*.

That of our own country, in particular, should attract the regard of the commercial student. Few histories afford more interesting matter than that of this island. How must the heart of a Briton burn within him, when he

B 5

reads

* Hayley's Essay on History.

reads of the glorious struggles which our ancestors, through many ages, have made to secure to us that liberty we now so amply enjoy! How closely should he grasp that inestimable jewel which has been purchased by the blood of so many heroes! How must he glory in that constitution which renders Great Britain the object of universal envy and admiration!

Nor are the objects of history confined to the achievements of war, the revolutions of governments, and the intrigues of statesmen. The origin and progress of commerce and of arts, come also within her province. And the philosophical historian does not content himself with the mere relation of facts; he endeavours to trace effects to their causes, to shew the principles by which commerce should be actuated; how the various interests, situations and connections of different countries should lead to different kinds of traffic; and in what manufactures the particular genius of a people may fit them to excel. Such disquisitions as these have lately tended to the establishment of a new system which may be, not improperly, denominated commercial philosophy. Here the tradesman is more immediately concerned. These are subjects which come directly within the sphere of his inquiries.

The English Classics will be a rich fund of entertainment and improvement. Shakespeare, Milton, Pope, Addison, Thomson, Gray, Mason, with a long list of excellent writers in prose and verse, will yield him charming refreshments, after the fatigues of the day. He may even indulge himself in sweet converse with the fair sex. A Montague, a Carter, a Barbauld and a Seward, justly demand his notice, and will prove most

most delightful companions, refine his taste, polish his manners, and meliorate his morals.

The sciences of Natural History and Botany require so much time to be devoted to the study of them, and such minute investigation, that, however *pleasing*, they may be justly considered as *improper* objects for the man of business to pursue *scientifically*, so as to enter into the exact arrangement and classification of the different bodies of the animal, vegetable, and mineral kingdoms. But reading, and personal observation, will supply him with ample matter for reflection and admiration. He will see the great universal cause actuating every part of nature. He will see animals, which a less accurate observer beholds with the most contemptuous eye, executing works far above human abilities to perform. He will behold them acting, and conducting their affairs, with a prudence and foresight, which, whether it be the effect of reason or of instinct, may justly humble the pride of human wit. With what attention has Providence bestowed on the various classes of animals, those endowments which are particularly adapted to their respective functions! Perhaps man, that lord of the creation, as he vainly boasts himself, is indebted for many useful lessons to very inferior animals. The voice of nature is thus described as crying out to him,

Go from the creatures thy instruction take;
Learn from the birds what food the thickets yield;
Learn from the beasts the physic of the field;
The arts of building from the bee receive;
Learn of the mole to plow, the worm to weave;
Learn of the little nautilus to sail,
Spread the thin oar, and catch the driving gale.

But

But several branches of Natural Philosophy seem peculiarly adapted to fill up the vacant hours in which the tradesman can withdraw from his employments. A general knowledge of all will tend to open and enlarge his understanding, at the same time that it affords him the most rational amusement. While the study of some, *in particular*, may not only tend to effect these desirable purposes, but supply him with a kind of information which may turn to good account, by furnishing him with the means of extending his commercial concerns, and conducting them to greater advantage; of improving those manufactures in which he is already engaged, or inventing new fabrics, which may give additional life and spirit to trade.

As Pneumatics, or the doctrine of the nature and properties of air, display an ample field of investigation to the philosopher, so will they also supply, to the more superficial inquirer, much instruction and entertainment. Every man is interested in the properties of a fluid to which he is so intimately related, and without which he cannot subsist a moment. Its various degrees of gravity, elasticity, heat, moisture, and purity, all affect the human race. Many of the most dire diseases which afflict mankind, are occasioned by noxious impregnations of the atmosphere, or cured by more favourable states of it. And many of the operations of nature and art are essentially influenced by the changes which are continually occurring in it.

Philosophy has lately made most rapid advances in discovering the constitution of common air. The ingenious Dr. Priestley has even taught us the art of fabricating it artificially, of producing it in a degree of purity far exceeding that

that of the most salubrious climate, and of reducing it to the state in which we commonly breathe it when debased by exhalations from the various bodies which it surrounds. From him we have also learned a mode of judging of the different degrees of purity in air, by means of the eudiometer, as of its gravity and heat by the barometer and thermometer. This excellent philosopher, to whom, as a learned foreigner has observed, "Nature takes delight in revealing her secrets," has also first discovered, and Dr. Ingenhous, treading in his paths, has more completely demonstrated, the method by which Nature makes use of the leaves of vegetables to purify the atmosphere, when contaminated with putrid or phlogistic vapours. When in this state, every leaf acts as a strainer to the air, imbibing and applying to the nurture of the plant, such part as are unfit for animal respiration, and throwing it out, thus filtered and suited to act again as a menstruum for the phlogiston, which is continually evolving by the breathing of animals, the corruption of vegetables, and by the many various processes which are by nature and by art continually carrying on.

Electricity is another branch of science which has afforded great light to the operations of nature. A knowledge of its leading principles, and a dexterity in making a number of entertaining experiments, may be attained by moderate application, and thereby a field of amusement opened to the mind, at an easy expence of time and money.

To obtain a perfect acquaintance with the science of Optics, much attention and close application would be requisite. Such a knowledge of it, however, as is sufficient for general purposes,

poses, is easily arrived at. The nature of the reflection and refraction of the rays of light, of vision, and of colours, the properties of lenses, are useful and entertaining objects of inquiry. But the very minute divisibility of the rays of light fills the mind with astonishment. When we are informed, that there proceeds more than 6,000,000,000,000 times as many particles of light from a candle, in a second of time, as the whole earth contains grains of sand, supposing each cubic inch of it to contain 1,000,000; when we are told that light in its passage from the sun to the earth, moves with the immense velocity of 95,173,000 miles in seven minutes and a half, we are impressed with the most profound veneration for that Almighty Being, who has so wisely adjusted the proportions between the bulk and velocity of these rays, as to make them answer all his benevolent intentions to mankind; whereas, an increase or decrease in the one or the other, might have been fatal to the animal and vegetable world.

By the Telescope and Microscope our eye is enabled to reach far beyond the limits of our natural vision. By the former, objects, at considerable distances, are brought, as it were, within our grasp, and we can soar upwards into other worlds. By the latter, we are impowered to search into the minutiae of nature, to admire the delicacy of her operations, and the wonders of creation, exhibited in the perfect fabrics of the smallest animals and plants.

The acquisition of knowledge in the sciences which we have already recommended, may perhaps be considered rather as amusing and ornamental, than necessary. But there are other branches of natural philosophy which may be deemed

deemed highly useful and important to commercial men. These are Geography, Mechanics, and Chemistry.

Geography is so closely connected with commerce, that it would be almost as great a reflection on the merchant to be ignorant of it, as of the rules of Arithmetic. Shall the man, whose vessels traverse every quarter of the globe, be unacquainted with its form, its motion, its divisions, its kingdoms, seas, rivers, lakes, islands and mountains? Shall he be uninformed of the nations and people with whom he traffics, their persons, manners, customs, governments and religion? Are not the flux and reflux of the tides, the situation and course of currents in particular seas, and the direction of those winds, which prevail in certain seasons and latitudes, phenomena, into the nature and causes of which he is interested to inquire? And, above all, should he not endeavour to know the produce of every country, and the articles, which, not being supplied in their own climate, may be most acceptable objects of commerce to the inhabitants?

The remaining branches come more immediately within the province of the manufacturer. Manufactures bear so intimate a relation to the Mechanical Powers, as to be incapable of subsisting, in any degree of vigour, without their support. How tedious, how expensive, and how imperfect would many operations be found, if performed by the mere efforts of human strength, or manual skill, unassisted by mechanical aid! The mechanic powers facilitate their performance, and render their products more complete. How much do we owe to them for the improvement and extension of the manufactures of this town! I am addressing a society, *all* of whom
are

are daily eye-witnesses of the beneficial consequences which have arisen from these improvements; *some* of whom are reaping the fruits of them. It would be superfluous, it would be impertinent to enlarge on the subject: for it must be evident, that as Mechanics are so essentially necessary to manufactures, a knowledge of their principles must be useful to every man engaged in such branches of trade.

With Mechanics, Hydrostatics and Hydraulics are so closely connected, that a knowledge of them may be considered as a necessary adjunct. For, on the principles of these sciences often depends the first movement of the most complete machines; and fire and water engines, mills, aqueducts, pumps, and other mechanical structures, can only be brought into action by their assistance.

Nor is the utility of Chemistry more confined, or less connected with manufactures, than Mechanics. Indeed Chemistry may be, not improperly, called the corner stone of the arts. They not only are supported by her, but many of them derive their very existence from this source. She even furnishes instruments to every one of the branches of natural philosophy we have enumerated. The truth of this proposition will be evinced, when it is considered that metals cannot be separated from their ores, nor glass produced without her aid. She supplies the astronomer with his lenses, and the mathematician with his instruments. The air pump, electrical, hydrostatical and hydraulic machines cannot be constructed without her intervention; and scarcely a piece of mechanism is formed, to which she does not contribute something.

In the finer arts the influence of Chemistry is very conspicuous. To her the painter owes most of those colours, by which he is enabled to give the resemblances of distinguished personages to the inquiring eye of a grateful posterity; to place before their view, more clearly than words can express, the martial deeds of the hero, and the firm virtue of the patriot; and to represent those beautiful scenes of nature, to the description of which language is inadequate. Without Chemistry, the fine colouring of a Titian could never have delighted the enraptured beholder. Nay, even the works of the philosopher, the historian and the poet, are indebted to her for their diffusion and permanency.

To shew the advantages arising from this science in all the arts through which they might be traced, would carry me far beyond the limits of my present design. It may be sufficient to point out the connection which subsists between Chemistry, and those manufactures which are the pride and glory of this respectable commercial town.

Bleaching is a chemical operation. The end of it is to abstract the oily and phlogistic parts from the yarn or cloth, whereby it is rendered more fit for acquiring a greater degree of whiteness, and absorbing the particles of any colouring materials to which it may be exposed.

The materials for this process are also the creatures of Chemistry, and some degree of chemical knowledge is requisite to enable the operator to judge of their goodness. Quick-lime is prepared by a chemical process. Pot-ash is a product of the same art; to which also vitriolic, and all the acids owe their existence. The manufacture of soap is also a branch of this science.

science. All the operations of the whitster; the steeping, washing and boiling in alkaline lixiviums; exposing to the sun's light, scouring, rubbing and blueing are chemical operations, or founded on chemical principles. The same may be said of the arts of dying and printing, by which those beautiful colours are impressed on cloths, which have contributed so largely to the extension of the manufactures of this place. How few of the workmen, employed in them, possess the least knowledge of the science to which their profession owes its origin and support! If random chance has stumbled on so many improvements, what might industry and experience have effected, when guided by elementary knowledge? The misfortune is, that few dyers are chemists, and few chemists dyers. Practical knowledge should be united to theory, in order to produce the most beneficial discoveries. The chemist is often prevented from availing himself of the result of his experiments, by the want of opportunities of repeating them at large: and the workman generally looks down with contempt on any proposals, the subject of which is new to him. Yet under all these disadvantages, I believe it will be confessed, that the arts of dying and printing owe much of their recent progress to the improvements of men who have made Chemistry their study. Much however remains to be done; and perhaps in no respect are the manufactures of this country more defective than in the permanency of their colours. Sensible as our manufacturers are of this defect, is it not strange that so few of them should attempt to acquire a knowledge of those principles which would most probably supply them with the means of improving and fixing their dyes?

This

This subject would afford matter for very extensive disquisition; but I fear I have already trespassed on the patience of the society. Suffer me, therefore, only to request your indulgence while I point out one other source of improvement and pleasure, consistent with the pursuits, and frequently advantageous, and even necessary to the business, of the tradesman.

A taste for the Polite Arts, especially those of drawing and design, should appear a desirable acquisition to the manufacturer of the finer and more elegant wares. If not possessed of this, he is always dependent on others for the patterns of his fabrics. Whereas, were he capable of inventing them himself, he would possess considerable advantages over his less accomplished neighbours. His imagination would continually supply him with something new; and of what importance novelty is, in these times of fashion and fancy, every day's experience furnishes convincing proofs. It is this supereminent taste that has distinguished the productions of a Wedgwood and a Bentley above all their competitors in the same line of business. Such a taste would doubtless be equally beneficial to the manufacturer of the fine cotton and silk goods of Manchester; and he would be enabled to equal in elegance of pattern, as he excels in strength of fabric, the manufactures of our neighbouring and inimical rivals.

*On the Nature and essential Characters of Poetry,
as distinguished from Prose. By Thomas
Barnes, D. D.*

[*From Memoirs of the Literary and Philosophical
Society of Manchester.*]

TO settle with precision the limits which divide *poetic* from *prosaic* composition, may perhaps appear, at first sight, to be neither very difficult nor very interesting. As, however, one great object of this society is, the enjoyment of free and friendly conversation upon subjects connected with science, it is probable, that topics, which are not in themselves of the greatest importance, may sometimes open a wider field, than others of more intrinsic excellence. Where much may be said in support of different hypotheses, we may hope for that collision of friendly argument, which may strike out some sparks, both of amusement and information. Thus, a comparatively trifling subject may eventually contribute to the noblest uses, to the exercise of the mental faculties, and to the diffusion of candour, and intelligence. Our time will not be quite mispent, if we can only glean from the topic before us, a single hour's agreeable and literary entertainment.

"Wherein consists the *essence* of POETRY," is a question, which it will not be so easy to answer, as may at first be imagined. Different authors have given very different definitions. Some have denominated it, "The art of expressing our thoughts by fiction." Others have imagined
its

its essence to lie in "The power of imitation :"—and others again, in "The art of giving pleasure." But it is evident, that *fiction*, *imitation*, and *pleasure*, are not the properties of poetry alone. Prosaic composition may contain the most ingenious *fables*. It may present the most striking *resemblances*. It may inspire the most sensible *delight*.

Poetry has been generally denominated an ART. Horace, if he himself gave the title to his own celebrated and admirable poem, has characterized it under that name. The *term* itself (Ποιησις) would naturally lead to the same idea; for it seems to imply, that labour and ingenuity, the necessary companions of *art*, must be employed in poetic composition. But certainly, it has the nearest affinity to *science* of any other art; for all its excellence consists, in its presenting science in a peculiar and engaging dress. An *art*, by which science is assisted, and sentiment exalted; by which the imagination is elevated, the heart delighted, and the noblest passions of the human soul expressed, improved, and heightened, will appear important enough, to have its boundaries exactly drawn, and the limits ascertained, which divide it from its humble neighbour. Or, if this be not possible, to have its *general* and *larger* characteristics clearly represented.

What is it, then, which constitutes the poetic essence, and distinguishes it from prose? Is it *Metre*?—Or is it something entirely different; sublimity of *Sentiment*, boldness of *Figure*, grandeur of *Description*, or embellishment of *Imagination*? Let us attend to the arguments, which may be offered on behalf of both these hypotheses.

"The

“ The characteristic nature of poetry, it may be said, consists in *elevation of thought*, in *imagery*, in *ornament*.”

“ For, have there not been real poems formed without the shackle of regular verse? Poems, which none but a fastidious critic would scruple a moment to honour with that name? Is not *Telemachus* a noble epic poem? For who would dare to degrade it to a lower character? Who would refuse the appellation to, the *Death of Abel*, which those who understand the German language, speak of with so much rapture? Or to the *Incas of Marmontel*, which the French celebrate, with equal enthusiasm of praise!

“ Does not elevation of sentiment of itself produce modulation of language? The soul, inspired with great ideas, naturally treads with a lofty step. There is a dignity in all her movements. She declaims, with a measured, solemn, majestic utterance. Her stile is sonorous, and swelling. These attributes indicate; these constitute the poet. They give strength and feeling to his compositions. Where these are found, who would look for any higher claims, before he would confer the palm of poetic honours? Where these are wanting, what other properties could give, even the shadow of a title? Who would refuse the title of *Bard* to the great Master of Hebrew song? For what can be more truly sublime, or poetical, than many of the *Psalms of David*? And yet, after the ingenious labours of the learned Dr. Lowth, the metre or rhythm has not been exactly ascertained; and probably will not, because it does not exist. The harmony of numbers, of which every ear must be sensible, arises purely from the *native impulse* of a
soul

soul inspired with sentiments, which it could not possibly express in any language but what was fervid and poetical.

“By this theory, it may be said, we account for the common remark, that the original language of mankind was poetical: because in the infancy of the world every thing would naturally excite admiration and vehement passion. Their rude and imperfect speech would bear inscribed upon it the stamp of strong and animated feeling. It would resemble the harangues of Indian orators, at this day, whose speeches are accompanied with tones and gestures, which to a cultivated European appear extravagantly pompous. Their lives were full of danger and variety. New scenes were continually opening upon them. Growing arts and sciences were presenting new objects of curiosity. Hence their feelings were amazingly intense. And hence their language was bold, and poetically sublime. Longinus, in the fragment of a treatise, which is unhappily lost, has this sentiment. “Measure belongs properly to poetry, as it personates the passions, and their language; it uses fiction and fable, which naturally produce numbers and harmony.”

It may be added, in support of this definition, “That our own inimitable poet, than whom none seems more to have enjoyed the inspiration of the Muse, describes the poet, as chiefly distinguished by the fervour of Imagination. He does not, indeed, assign him the most honourable company; but he makes ample amends by a description of poetic fancy, wonderfully brilliant and captivating.

“The LUNATIC, the LOVER, and the POET,
Are of *imagination* all compact,

One

One sees more devils than vast hell can hold,
 That is the MADMAN : the LOVER, all as frantic,
 Sees Helen's beauty on a brow of Egypt :
 The POET's eye, in a fine frenzy rolling,
 Doth glance from heaven to earth, from earth to heaven ;
 And, as imagination bodies forth
 The forms of things unknown, the poet's *pen*
 Turns them to shapes, and gives to airy nothing
 A local habitation and a name." SHAKESPEARE.

Who can forbear applying to the poet, what has been so justly applied to the great critic, lately quoted,

" He is *himself* the great sublime he draws !"

" Horace, likewise, seems to rank himself on this side of the question in the fourth Satire of his first book, where he endeavours to settle the point of Poetic Character. He, first, excepts himself from the number of those, to whom he would allow the name of Poet ; because compositions like his own, "*sermoni propiora*," do not give a just claim to the appellation. He, then, describes the *real bard* ;

INGENIUM cui sit ; cui MENS DIVINOR, atque OS
 MAGNA SONATURUM, des nominis hujus honorem.

With respect to himself, and to Lucilius, he tells us, that if you take away the order and the measure, their verses would become "*sermo merus*," mere prose. Not so, if you take in pieces that line of Ennius,

" Postquam discordia tetra
 Belli ferratos postes, portasque refregit."

For then, he exclaims,

“Invenias etiam DISJECTI membra POETÆ!”

The true poetic essence, then consists in *elevation*, *imagery*, and *grandeur*; to which modulation is no more than an adjunct; necessary indeed, because it, in some degree, necessarily accompanies animated and poetic sentiment.”

To these arguments, it may be replied :

“That the modesty of Horace, in excepting himself from the rank and honours of poetic character, will not be admitted even with respect to those verses, as to which alone, he made the exception. For who has not in every age classed the Epistles and Satires of Horace, in the number of poetic compositions, though, as he says, his style only

“Pede certo
Differt sermoni : sermo merus.”

“If we adhere rigorously to this definition, shall we not exclude many candidates from whom we should be sorry to pluck the well-earned wreath of poetic fame? All verses, where the subject is low or ridiculous, as the *Hudibras* of Butler: where it is simple and narrative, as the *Fables* of Gay; or even, where it is plaintive and melancholy, as the *Church Yard* of Gray, must be banished from the region of the Muse. Parnassus must be, ‘*all cliff*,” without a single vale in all its circuit. None must then be deemed a poet, who cannot soar to its loftiest summit, on Epic or Heroic wing. If we should form an *index expurgatorius* upon this principle,

what havock should we make among the *minor poets*? How many should we exclude, whom every lover of the Muse ranks, with grateful veneration, in the number of her inspired votaries?

“Elevation of sentiment, imagery and creative fancy, are not to be found in poetry alone. They often belong as much to the Orator. For where will you find nobler flights of imagination, loftier sentiments, bolder addresses to the passions, or more animated, we might say, modulated language, than in the *Orations* of Cicero; not to mention those of our modern orators, whose eloquence, however, we would not scruple to compare with that of the most admired antients?

“If we might argue from the name, *Poetry*, we should naturally conclude that the antients themselves understood by the term, not those irregular modulations, which naturally arose from the impulse of strong and impassioned feelings, from grandeur of sentiment, from beauty or boldness of imagery; but something more artificial and elaborate; something which demanded more effort and ingenuity to form, than merely arose from the effusions of a glowing heart.

“Is not, then, the proper and peculiar characteristic of poetry, that *metre* or *rhythm*, which the ear so easily distinguishes, and with which it is so unspeakably delighted? Is not this the great distinction between the modulation of poetry and prose; that the one is regular, determined by certain laws, and returning upon the ear at stated periods; whilst the other has no standard but the general sense of harmony, and is infinitely irregular and various? The imagery or sentiment is
a mere

a mere circumstance, which does not constitute, however it may adorn, poetic composition. We can suppose nonsense in prose. Can we not equally suppose nonsense in poetry? And yet, shall there not be an essential difference between poetic and prosaic jargon? If so, something else, besides the sentiment or sense, is the boundary between them. And what is this, but that *metre* or *melody*, without which the language which conveys the loftiest sentiments may be indeed poetical, but can never be *poetry itself*."

I shall not pretend to decide, absolutely, upon the strength or weakness of the foregoing arguments. I shall be happy to hear them fully discussed in the ensuing conversation, from which I promise myself both instruction and entertainment.

At present, I find myself disposed to rest in some such general conclusion, as the following.

* To *finished and perfect poetry*, or rather to the *highest order* of poetic compositions, are necessary, elevation of sentiment, fire of imagination, and regularity of metre. This is the summit of *Parnassus*. But, from this sublimest point, there are gradual declinations, till you come to the region of prose. *last line* of separation is, that of *regular metre*. And, in common language, not having settled with precision the nature or boundaries of either, we often apply the poetic character with great latitude to compositions which have more or less of the preceding qualities, but which are formed into uniform and regular verse. Often, the name is given to works, which have

nothing to distinguish them but *mere number*. What has not this metrical modulation, we call *poetical*; and what has it, we call *prosaic*, solely upon account of the sentiment. For poetry and prose, like two colours, easily distinguishable from each other in their pure unmixed state, melt into one another by almost imperceptible shades, till the distinction is entirely lost. Their general characters are widely different. Their approximations admit of the nearest resemblances.

With respect to *mere number*, the difficulty is not great, in the present cultivated state of language, for any person, of a tolerable ear, to tag together lines, the music of which shall be flowing and agreeable. Hence the multitudes of indifferent poets who abound amongst us! But it has been justly observed that a state of cultivated society is not favourable to those bolder exertions of poetic fancy, which elevate, astonish, and delight the mind.

It has been often said, as we have before remarked, that the original stile, both of history and conversation, was poetical. The friends of this hypothesis must mean no more, than that, in early ages, their language was, in general, bold and florid, and we have already observed, that strong conceptions naturally clothe themselves in figurative and modulated expressions. From *strong*, to *regular*, the transition is not difficult; and the advantage would be great. Uniform metre would give more delight to the ear, by rendering the music more perfect; and it would be more easily retained by the memory.

We may account for the formation of *regular verse*, on another principle. This same animated feeling which prompted men to dance and sing, would also prompt them to express themselves
with

with energy of tone, of stile, of sentiment. It would lead them to endeavour to adapt their language to their song. But, in order to this union, it must become measured and exact. Hence, the early formation of verse, which, when once adopted, would, for the reasons before mentioned, be immediately employed, to convey their laws, and histories, to future ages. It differed but little from the common stile of their orations. At least, the difference was not to be compared with that, which is found in the more advanced periods of society, and of language.

We have already observed, that, in the early ages of mankind, when their lives were filled with toils and dangers, and when new and interesting events were continually opening upon them, their passions would correspond to their situation, and would be various, vehement, and active. Civilization and science have, as it were, minced into finer portions the feelings of the heart. By this means we enjoy a far greater number of pleasurable sensations, and, upon the whole, I doubt not, a much larger sum of happiness. The life of an Indian consists, either of glare, or of darkness. He is either transported with passion, or sunk into stupor. These larger masses have been broken, by the hand of culture, into smaller pieces, which are in perpetual currency, and which maintain, among us, a more equal and constant enjoyment.

But, from hence it will follow, that the strong poetic character may be expected to decline, as *taste* improves. We may, perhaps, hope to excel, in softness, delicacy, and refinement. But these are feeble graces. The mind

soon tires, with the perpetual chime of smooth versification, and with the unvaried flow of gentle and unimpassioned sentiment. The bursts of honest nature, the glow of animated feeling, the imagery, the enthusiasm—These are the charming properties which will for ever exalt the poems in which they are found, to the first order of poetic excellence. For these, no appendages of art can be deemed an adequate compensation.

A writer, whom I cannot mention without great respect, notwithstanding our difference of opinion upon some interesting subjects, seems not to have settled accurately his own idea of poetic essence. Dr. Johnson, many of whose criticisms upon the English Poets indicate the strength of judgment, and some the elegance of taste, says, in his life of Milton, "Poetry is the art of uniting pleasure with truth, by calling imagination to the aid of reason." He then mentions the different sciences, of which the Poet should be a master; history, morality, policy, the knowledge of the passions, physiology. "To put these materials to poetical use, is required, an imagination capable of painting nature, and realizing fiction. Nor can he yet be a poet, till he has obtained the whole expansion of his language, distinguished all the delicacies of phrase, and all the colours of words, and learned to adjust all these different sounds, to all the variety of metrical modulation." In these last words, metrical modulation is supposed to be a necessary adjunct to knowledge, and imagination. In another place, he says, "It is by the music of metre, that poetry has been discriminated, in all languages." And yet he had just before said, "That, perhaps, of poetry,

try, as a mental operation, metre or music is no necessary adjunct." I am unwilling to draw any other inference from these passages, than this, that, such is the difficulty of settling with precision the poetic essence, even Dr. Johnson is inaccurate and inconsistent.

If, in order to avoid this charge, it be said, that a distinction is made, between poetry as a mental operation, and poetry as an actual expression of the thoughts in language, then it will follow, that a person may be a mental Poet without being a practical one; because he may possess imagination, feeling, &c. without being able to express these mental operations in a proper manner. He may have poetical ideas, but not poetical stile. And, exactly in the same sense, a man might be an orator, or a painter, without being able to speak in public, or to use the pencil.

I beg leave to finish the subject by a few observations on modulation of language, which have suggested themselves in the course of the foregoing speculations.

Different languages vary, exceeding widely, in their capability of modulation; and, from this cause, will vary as much in the mode and character of their rhythm, or musical composition. Every good and rounded stile, in prose, as well as in poetry, has a metre, or music, which the ear, when at all refined by classical taste, can immediately feel and enjoy. There is in finished composition as much of melody and sweetness, in the arrangement of prosaic syllables, as in the most poetical. The ear as nicely discriminates the soft, the plaintive, the bold, the nervous, the elegant, by the flow of musical expression, as in the most exact and

perfect poem. From this circumstance alone, we are able, at once, to distinguish the stile of Addison and Sherlock, of Tillotson and Watts, and Young. We distinguish them, as easily, as a connoisseur in music, who feels, at once, the compositions of Handel, and those of Corelli.

It is probable, the ears of the ancient Romans and Grecians were more nicely tuned, to discern the melody of arrangement, and of cadence, than ours. Or, probably, we have lost that "tune," or mode of pronunciation, in which their languages were spoken; for a modern ear cannot feel that richness and harmony of numbers, which appears to have been, to them, so inexpressibly delightful. "Cicero tells us, that he was himself a witness of its influence, as Carbo was once haranguing the people. When that Orator pronounced the following sentence; 'Patris dictum sapiens temeritas filii comprobavit,' it was astonishing, says he, to observe the general applause which followed that harmonious close. And he tells us, that, if the final measure had been changed, and the words placed in a different order, their whole effect would have been absolutely destroyed."

This musicalness, and flow of numerous composition, which charms the ear of every judicious reader, is certainly felt most strongly, when it is read aloud, with taste and expression. But when read with the eye only, without the accompaniment of the voice, there is a fainter association of the sound, the shadow of the music, as it were, connected with the words; so that, we can judge as exactly of the composition, as if it were audible to the ear. This power, of associating sound with vision, is formed gradually by habit; for common people, who

who are not much accustomed to books, hardly understand any thing they read, unless it be accompanied with the voice. And some Gentlemen are said to have acquired this art of mental combination so perfectly, as to read, even the notes of a musical composition, with considerable pleasure.

The difference of modulation in languages, must give a different character and expression to their poetic compositions. The Grecian and Roman tongues were so happily constructed, that their verse easily distinguished itself by its arrangement, and therefore needed no secondary or artificial aid. It has been thought, that our English tongue is not equally happy; and that, therefore, rhyme is, in general, necessary to make the discrimination perfect, and to give that chime or music to the ear, which the succession of long and short syllables alone could not effect. The fact adduced in support of this observation, by Dr. Johnson*, is certainly true; "that very few poems, in blank verse, have long maintained a character among us. Thomson, and above all, Milton, are great exceptions, but their style is singular. They formed themselves upon no model; and are *originals* which we may admire, but ought not to attempt to copy."

This remark, though, perhaps, in some degree just, is, however, degrading. And, if the tag of rhyme be, in general, necessary to our English poetry, it will be an additional argument in favour of that hypothesis, which supposes metre to be the grand criterion of poetic diction.

C 5

Yet,

* Life of Milton.

Yet, methinks, the Doctor is too severe, when he says, "The variety of pauses, so much boasted of by the lovers of blank verse, changes the measures of an English Poet, into the periods of a declaimer." To me, there appears a very essential difference, between the pauses of verse, and those of mere declamation. The poetry of Milton has been celebrated by the best judges, as inimitably beautiful and harmonious, from the amazing variety, and judicious changes, of the pause. These are so admirably disposed, that the ear hardly ever tires. There is none of that perpetual sameness, and recurrence of sound, which, in common blank verse, is so insufferably disgusting. Surely, the verse of Milton is not, "verse only to the eye." I cannot, therefore, subscribe to Dr. Johnson's sentiment, "that all the power of Milton's poetry consists in the sublimity of his sentiment, or the peculiar (he elsewhere calls it 'perverse and pedantic') arrangement of his stile." His sentiments are, indeed, lofty and noble. But his metre also is inexpressibly rich, mellow, and harmonious. Whichever hypothesis, therefore, we adopt, as to the constituent character of *poetry*, that of Milton will have every praise,—of *sentiment*—of *imagery*—of *modulation*.

On the Affinity subsisting between the Arts, with a Plan for promoting and extending Manufactures, by encouraging those Arts on which Manufactures principally depend. By Thomas Barnes, D. D.

[From Memoirs of the Literary and Philosophical Society of Manchester.]

“ Omnes Artes, quæ ad Humanitatem pertinent; habent quoddam commune vinculum, et quasi cognatione quâdam inter se continentur.

Cicero pro Archiâ Poetâ.

IT is a question, not only of speculation, but of real importance, “ How far is it desirable that a man of learning shall devote himself to *one* particular object ?” Or, to put in a different form, “ Will not the interests of *Science* be best promoted by a more general and extended application to different studies ?”

In the life of Dr. Isaac Barrow, we are told, that great man “ entered upon studies of different kinds, whereby he could not totally devote himself to *one*, which would have been more for the public benefit, according to his own opinion, which was, that general scholars did more please themselves ; but that they, who prosecuted particular subjects, did more please others.”

Whatever truth there may appear to be in this sentiment, in some uncommon instances, I persuade

suade myself, it will not, in general, accord with experience. Though every man should have some *one object* continually in view, to which he should refer all his knowledge, and by which he should direct all his studies; yet, with this aim, let him rove abroad, through the various walks of literature. He will, probably, meet with many things, which he will now apply, with great advantage, to his main subject, and by which he may illustrate, embellish, or extend it. General Science, with this particular application, collects the scattered rays, reflected from a thousand objects, into one focus, and blends all the variegated colours of the rainbow, into one white and luminous point. Whatever praise may, in particular cases, have been given to the man, who has travelled only in one path of Science; his ideas must necessarily be very confined, and he will, probably, fall under the charge of pedantry, and affectation. The Sciences are sisters, affectionate sisters! and, as the Roman Orator, in our motto, has beautifully expressed it, "*Quasi cognatione quâdam inter se continentur.*" To be in the good graces of any one of them, you must pay some respectful attention to the rest.

General knowledge, like the general motion of the various limbs of the body, gives an agility and vigour to every part of the mental frame. The continual, solitary play of one particular limb, may give strength and dexterity to the muscles connected with that limb; but the probable consequence will be, awkwardness and imbecility in all those which are not brought into action. The mere mathematician, the mere grammarian, or the mere any thing, may, perhaps, with microscopic eye, see one little object
very

very distinctly. But, if not accustomed to look around him to a wider range of vision, his view will be narrow, and, when he turns from that lucid point, he will be enveloped with darkness. It is, indeed, impossible for the man, whose mind has not been expanded by some love of general knowledge, to appreciate the several sciences, according to their just value, and to assign to each their proportionable share of esteem and consequence. If Monsieur Vestris comprise all human excellence in dancing: if another man look down, with supreme contempt, upon every person, who has not plunged into the depths of mathematical, or metaphysical mysteries, what is the cause? Is it not the want of some acquaintance with other sciences? This would have enabled him to range the different branches of knowledge in their proper order, and to apportion to each their proper share of attention and regard.

But we may advance a step further. The *Man of one Book*, is not likely to understand that one book, so well, as the man of more extended study. There is a general analogy and affinity among all the sciences. In all those which require cultivated imagination, or improved taste, general knowledge is absolutely necessary. To form elegance of mind, there must be, a comparison of ideas, a combination of images, an extension of soul. Hence arise, the sense of symmetry, elevation of sentiment, and a capacity to relish the beautiful and the sublime.

The more abstruse sciences may seem to require less of foreign and adventitious aid. The metaphysician may, like a mole, work under ground, blindfold. Buried, ten thousand fathoms deep, beneath the surface, he may need little

little the taper of the other sciences. And yet, the fact has often been, and experience confirms it, in many instances, at this day, that those who have excelled most, even in the abstruser parts of literature, have been men of a large acquaintance with knowledge. And, in general, those who have shone with uncommon splendor, in some one professional, or favourite science, have been distinguished by an attachment to knowledge, in all its branches. Newton was not the mere astronomer, or calculator. Boyle was not, merely, the natural philosopher; nor was Locke, the mere metaphysician. They had occasionally wandered into the other walks of science, and had brought from thence treasures, to enrich their favourite stores. To these how many names might be added? Barrow, Haller, Watts—and *one*, whose name I cannot mention without strong and grateful sensations—the late Dr. Aikin, than whom few have had mental treasures, more various, or more valuable*.

It is in general said, that the knowledge, which, like the broad stream, flows over a wider surface, must be proportionably shallow; whilst that which runs in the narrow channel must be deep. But we are deceived by an image. We argue from a fancied resemblance. The mind,
long

* John Aikin, D. D. was Tutor in Divinity at the Academy at Warrington for several years. Though not known to the world at large as an author, his modesty having unhappily prevented him from appearing in print, he was uncommonly revered by all that knew him for the wonderful extent of his knowledge, for the mild dignity of his character, and for the various excellencies which adorned the Scholar, the Tutor, and the Man. He was the father of Mrs. Barbauld, and of John Aikin, M. D. both of whom are well known in the Republic of Letters.

long poring upon one object, grows tired and feeble. It is necessary, sometimes, to change the object, in order to restore its tone and vigour. He, who can thus diversify his pursuits, keeps up the spring and energy of his powers, the ardour of his studies, the keenness of his research. He borrows ideas, images, illustrations, from kindred sciences. His mind widens with increasing knowledge. He sees every subject, as it were, in a larger field of vision. He views it round, in a greater variety of aspects. His soul is expanded, his judgment strengthened, and all his powers assisted and improved.

But I meant, principally, to extend this sentiment to the *Arts*. Though they too have a near affinity, yet it is not generally imagined, that, to excel in one art, it is proper a man should have any knowledge of others; especially of those which appear more remote and unconnected. That a poet should be a painter, or a painter a poet, may seem desirable, from the similarity of taste, of genius, and of imagination, necessary to excellence in these kindred arts. But, in the lower, and mechanic employments, how seldom is it known, that a man, versed in one kind of ingenious labour, has the most distant knowledge of others, even of those which seem most nearly connected with his own? How many watch-makers know very little of clock-making; though, here, the connection is as close as possible? How many machines are used at Birmingham, in the different branches of manufacture carried on there, of which a mechanic at Manchester, even in the same line, is entirely ignorant? There are, it is probable, in every manufacture, I had almost said, in every place, some peculiar, and local improvement, which has never yet been extended

extended beyond the vicinity where it was first invented. Of late, indeed, the spirit of enterprise has gone forth, and the inventions, made in one manufacture, have been sometimes transferred to others. The machines for spinning cotton have been applied to woollen, and with great advantage. And, probably, both have been under great obligations to those curious machines, for twisting and manufacturing silk, which have so long excited general curiosity, and admiration.

So great is the analogy between the several arts, that no man knows to what extent the improvement of any single art may affect others, even where the relation, at first sight, appears most distant. Who could have imagined that the discovery of the properties of the magnetic needle would have had such amazing and almost infinite effects? That, by this property alone, navigation should become so astonishingly extended, new continents be discovered, and a *new era* opened, in the history of the globe! I was, a few days ago, greatly pleased with tracing the progress of an invention, into several branches of art, with which, at first, it appeared, not to have the most remote affinity. I refer to the Cylinder, covered with wire-cloth, of different fineness, originally intended only for sifting flour, meal, and bran, immediately as they come from the mill-stone. For this ingenious invention Mr. Mills got a patent, the term of which is now, probably, expired; for the person who shewed it me, informed me, that he had himself applied the Cylinder, with little variation, in sifting gunpowder, snuff, tanners' bark, and sand. So that by this simple, but beautiful discovery, the dealers in all those various articles have reaped already considerable advantage: and how far the advantage

tage may still be extended, is as yet unknown. The power of steam, in producing effects, to which hardly any powers of mechanism are equal, has been long observed in the Fire-Engines, in the construction and application of which Philosophy has lent her aid to Art; and Science has become the tutor, and guide of Genius. But we have not heard, till lately, that this active and potent principle has been applied in any other instances; though there are many, in which a principle so powerful, and, it is presumed, so manageable, would be of unspeakable advantage. The extension of it to machines, for spinning cotton, and for grinding corn, is now, I am informed, under the contemplation of different Artists; and, if circumstances favour the execution, will, probably, be accomplished.*

That our manufactures, at present, depend very much upon our machines: that the Cotton manufacture, in particular, is, under Providence, entirely dependent upon them: and, that their utmost improvement, to the very highest point, to which it is possible for them to arrive, is, in the present circumstances of trade, very desirable, for the sake of every interest, and of every order of men, dependent upon our manufactures, I will not here attempt to prove. They are positions, denied by none but the lowest and weakest of the vulgar; where alone such weakness is pardonable. Whatever, therefore, may tend to encourage and assist those arts, by which

* A machine for spinning cotton has now been worked, for some time, upon this principle, at Manchester. And the other, for grinding corn, is said to be in considerable forwardness, near Black-fryars bridge, London.

which mechanism may be improved, and our manufactures extended, is a matter of common utility and importance. The Clergyman, the Physician, the Gentleman, are, I had almost said, equally interested with the Tradesman and the Merchant.

To answer, in some degree, this important end, and to serve, however feebly, this *general interest*, I have imagined to myself a *plan*, which appeared to me, not impossible to be carried into execution, and important enough to be attempted. It may, possibly, appear to some gentlemen, an Utopian scheme. Many objections may, at first sight, appear to rise against it. But I have all the confidence of a projector, in saying, that I firmly believe, with proper attention, such as has been paid to other designs of public utility, it might be executed; and, if executed, must be of public advantage; an advantage which no man can estimate at present, and the full extent of which, perhaps, no man could conjecture.

Before I state this plan, I will beg leave to make two observations, in addition to what has been already said, on the subject of improvements in our manufactures. And, first,

It is now more necessary than ever, that our artists and workmen, in the different branches, shall be possessed of some degree of taste. And taste is only to be acquired by that general and miscellaneous knowledge, which it has been the object of this paper to recommend. Our manufactures must now have, not merely, that strength of fabric, and that durability of texture, in which once consisted their highest praise. They must have elegance of design, novelty of pattern, and beauty of finishing. To effect these, all the aid of improved and refined art is essentially necessary.

fary. The dull plodder, accustomed to pace round and round, like a mill-horse, is not likely to strike out any thing new and elegant. He may, indeed, adopt the improvements of others: but his will never be the praise of serving his fellow-creatures, by any inventions, of real importance and utility.

I would further observe, that in the present state of the Arts, capital improvements are not to be, in general, expected from those, who would, at first sight, appear most likely to make them; I mean the workmen in different branches of mechanism. Turn your eyes to any of our numerous manufactures. You find every division of mechanical labour executed by a separate set of workmen. Dr. Smith, in his *Wealth of Nations*, tells us, "that a Pin goes through eighteen several distinct operations," each of which, probably, in a large concern, is performed by a different operator, who, it may be presumed, would feel himself very awkward and unready, if obliged to change employment with any other of his fellow workmen. How many hands concur, in the formation of a watch, but very few of whom are so well acquainted with the whole mechanism as to be able to put the Watch together, or to calculate the different wheels of which it is composed.

I imagine it to be owing to this circumstance, that improvements, upon a larger scale, such as the invention of great and complicated machines, &c. have generally been made by persons not originally educated to the profession of those arts in which they have made such astonishing discoveries. Whilst the regular artists have had their attention fixed upon the little points, and ramifications of arts, in which indeed they have
become

become astonishingly perfect, the others, standing more at a distance, have had a wider field, a nobler object in their view, at once. Hence, their minds have been extended to a complex whole, the first faint outline of which they have, by slow degrees of patient labour, finished into form and beauty. Hence, almost all our late machines have been invented in a part of the country where the state of the Arts is not greatly improved, and where original genius is not minced down to the shreds and atoms of a long-established and widely extended manufacture.

It is acknowledged, that mere random genius has made astonishing discoveries and improvements, without any aid but that of native sagacity. But, on the other hand, how many minds, capable, with assistance and encouragement, of producing the happiest inventions, have, for want of them, pined in obscurity, lost to the world, and incapable of any great achievement? And, we may ask, what might such genius have achieved, if fostered by science, by liberality, and by honour *! What Brindley executed by the mere dint of natural parts, is no exception to the rule. How much more might even *he* have done, if assisted by a more extensive knowledge, and a more liberal education? What, if

to

* But knowledge to their eye, her ample page,
 Rich with the spoils of time, did ne'er unroll;
 Chill penury repressed their noble rage,
 And froze the genial current of their soul.

Full many a gem, of purest ray serene,
 The dark unfathomed caves of ocean bear;
 Full many a flower is born to blush, unseen,
 And waste its sweetness on the desert air.

GRAY's Church Yard.

to genius and application had been added a larger field of observation, a more general acquaintance with the mechanical powers, and with what those powers have already done, in the various branches of Manufactures, and of Arts! How much further might he have advanced! That human ingenuity is not exhausted, that machines are not yet carried to their highest improvement, and that they ought to be encouraged to their very utmost exertions, none here will question.

Let us now apply these observations. I have ventured to chalk out the outlines of a *plan*, the sole object and principle of which is, the improvement of our Manufactures, by the improvement of those Arts on which they depend. Those arts are, Chemistry and Mechanism. In an excellent paper, read to this society some time ago, it was lamented, "that so few of our dyers are chemists, and of our chemists dyers." We may add, How few of our Mechanics understand the principles of their own arts, and the discoveries made in other collateral and kindred manufactures? At this day I am informed not a single weaver in the Norwich trade understands the use of a Fly-shuttle.

But to proceed to our plan.

The first object of this scheme is—To provide a *public repository* among us for *chemical and mechanic knowledge*.

"In order to this, I could wish *models* to be procured of all such machines, in the various arts, as seem to bear the most distant relation to our own manufactures. All the processes in those of Silk, of Woollen, of Linen, and of Cotton, should be here delineated. These would make the most necessary and important parts
of

of this collection. But to these might, with great advantage, be added, the astonishing effects of Mechanic Genius in other branches, which have not so apparent an affinity with our own.

“In this *Repository*, let there be, likewise, provided, an assortment of the several ingredients used in *Dying, Printing, &c.* for the purpose of experiments.

“A *Superintendent* will be necessary, to arrange, and to apply this collection to its proper use. He should be a man well versed in chemical and mechanic knowledge. And let his province be, at certain seasons, and under certain regulations, to give *Lectures*, advice, and assistance, to those who wish to obtain a better knowledge of these arts.

“Lastly; let the expence, necessary to open and to support the scheme, be defrayed by a subscription: and let every subscriber have the power of nominating one, or more, to receive the advantages of this Institution.”

I mean only to draw the rudest outline of the plan, and would leave it to the ensuing conversation to be filled up, with colouring, or shade. By this scheme, properly methodized and conducted, I should hope for some of the following advantages.

This *Mechanic School* would properly finish the education of a young Tradesman or Manufacturer. It would succeed, in its natural order, to the school for writing and arithmetic. It would serve as a proper step of transition from thence to the warehouse; and, perhaps, it might become a regular part of a young Gentleman's preparation for business. How desirable a part it would be, I will not here say. Other Gentlemen present

sent are much better qualified to decide upon the question.

But the principal advantage I should propose from this scheme, is this: Here would be a kind of *general oracle*, which those might consult who were engaged in mechanical improvements, and who might here, at once, gain that information, which it might cost them months and years to obtain, by their own unassisted efforts.

It would be very easy to enlarge, in theory, upon the possible, and probable benefits of this Institution. But I check myself, hoping to hear, from Gentlemen more conversant with manufactures, their sense of this, it may be, visionary scheme.

Objections will, perhaps, have already arisen, which may appear strong: I hope not unanswerable. That of the expence I cannot allow to be of this number; nor the difficulty of finding a proper person to superintend the Institution; nor the regulations necessary to its internal management and conduct. If no objections, stronger than these, be found against it, I shall not deem it altogether Utopian.

Something similar to this has been done by the Society of Arts. But the two plans are essentially different. They give premiums, but they have no Lectures, or modes of Instruction. Our plan would be desirable in every large town, and particularly in the center of every important manufacture.

Whilst I was engaged in thinking upon this plan, and, like the Artist, enamoured with its
imaginary

imaginary beauty, I met with the following passage in Sully's Memoirs. My feelings, in reading it, I will not attempt to describe.

He tells us, that, among the great designs of Henry IV. which were prevented from being carried into execution by the untimely and tragical death of that great Prince, was the following :

“ There was to be, (says he) a *Cabinet of State*, in the Louvre, destined to receive whatever could tend to the knowledge of Finance, of Science, and of Art.” After enumerating several of these, particularly relating to the army, such as lists, plans, charts, &c. &c. he adds, “ I conceived a scheme of appointing a large room, as a magazine of models, of whatever is most curious in machinery, relating to war, arts, trade, &c. and all sorts of exercises, noble, liberal, and mechanical; that all those who aspired to perfection might, without trouble, improve themselves in this silent school. The lower apartments were to hold the heavy pieces of workmanship, and the higher were to contain the lighter. An exact inventory of both was to be one of the pieces of the great cabinet *.”

What a pity is it, that this noble plan was not carried into execution ! It would not have been the least of the embellishments of the reign of Henry. It would have done honour to the Prince, and to the age †. I mean not to disparage the utility of our modern collections, of
fossils,

* Sully's Memoirs, vol. iv.

† I have been informed, that this plan is since carried into execution, in the Palais Royal.

fossils, shells, mosses and insects. They are the works of God ; and, therefore, worthy of our highest admiration. But I can easily conceive, that a scheme like this, upon a smaller scale, might possibly be applied to better use than many of those collections actually serve. In a town like this, the opulence, and even the very existence of which, depends upon manufactures, and these again upon arts, machinery and invention, a *public Cabinet*, devoted to this purpose, would be at once of general ornament and utility.

An *Essay* on the *Pleasure* which the *Mind* receives from the Exercise of its Faculties, and that of *Taste* in particular. By *Charles de Polier*, Esq.

[From *Memoirs of the Literary and Philosophical Society of Manchester.*]

“Denique, sit quodvis simplex dentaxat et unum.”

HOR. de Art. Poet.

THAT the exercise of the mind is no less necessary to the existence of man, than that of the body, appears incontrovertible. The senses of the brute part of the creation, are so much more perfect than ours, that thereby they are enabled to pursue whatever is favourable, and to avoid whatever is detrimental to them. In giving us the powers of the understanding, the Author of the universe hath abundantly supplied that defect. By them we not only rise superior to the beasts in every means of providing for our support, our defence, and our welfare; but we have improved upon nature, and made the whole world subservient to our wants, and to our desires. It was not, however, the intention of Providence, that those advantages should be gained without any trouble on our side. The intellectual faculties, for the most part, lie dormant in us; to rouse them, strong exertions are

are necessary; and men naturally fond of ease, and prone to indolence, would for ever, perhaps, remain in a state little superior to that of the brutes, if necessity, at first, and pleasure afterwards, did not call forth these latent powers.

Pleasure, the parent of joys and amusements, will be found alike the parent of Sciences, and of Arts; Nature, in her kindness to man, having annexed an agreeable and pleasing sensation to *whatever gives exercise to the mind without fatiguing it*. To this we are indebted for the improvements made to arts, taught, at first, by necessity; and for the discovery of many more, either agreeable or useful. Nay, such is the charm of that exercise, that it has been known so to elevate the soul, as to detach her, as it were, from the body*; and freeing her from its shackles, set her in that state, so beautifully described by Akenfide, when he says in his Pleasures of Imagination,

D 2

* We read in *Aulus Gellius*, that *Socrates*, to exercise his patience, as he says, but perhaps to indulge, in all its extent, the pleasure we are here speaking of, used to stand for twenty-four hours together, in a steady posture unmoveable, without even so much as winking his eyes, which he constantly kept fixed upon the same place, entirely absorbed in his own thoughts, and seeming, as if an actual secession had taken place between his soul and body.

It will be but doing justice to *Aulus Gellius*, though not a very elegant writer, to set down here his own words.

“*Stare solitus Socrates dicitur pertinaci statu, per dies atque per noctes, à summo lucis ortu ad solem alterum orientem, inconnivens, immobilis, iisdem in vestigiis, et ore atque oculis eundem in locum directis, cogitabundus, tanquam quodam secessu animi facto à corpore.*”

Aul. Gell. Noct. Attic. Lib. II. Cap. 1.

----- " The high born soul
 Disdains to rest her heav'n aspiring wing
 Beneath its native quarry. Tir'd of earth
 And this diurnal scene, she springs aloft,
 Through fields of air ; pursues the flying storm,
 Rides on the vollied lightning through the heav'ns ;
 Or yok'd with whirlwinds and the northern blast,
 Sweeps the long tract of day."

I omit the rest of that noble passage, too long to be here inserted ; but written with all the enthusiasm of poetic genius, joined to all the sweetness and harmony of numbers.

Vide Akenfide's Pleas. of Imag. B. I. Ver. 183.

The history of Archimedes, the famous Sicilian Philosopher, is well known. Neither the sense of decency on one occasion, nor the sense of danger on another, could divert his thoughts from the object they had in view, and from the pleasure they afforded him. If the truth of these surprising anecdotes may be doubted, let us at least acknowledge the possibility of them, from what we may observe every day among us. Would not one imagine, on seeing a Chess-player, for instance, so entirely wrapt up in himself, as to appear insensible to every thing around him, that he is taken up with the care of his own fortune, the preservation of the state, or some such great and important subject ? And yet, all this intenseness of thought is produced by the position of a small piece of ivory, which gives exercise to his mind, and procures him that pleasure in which he seems so totally absorbed. Other instances might be adduced. The entertainment we receive from riddles, charades, and such other *Jeux d'Esprit*, proceeds from the same source.

source. Every reader, of acute understanding and refined taste, delights to meet in authors with such delicate thoughts, as not being immediately obvious, are just concealed enough to give him the pleasure of finding them out, and as such, may be compared to Virgil's *Galatea*,

"Et fugit ad Salices, et se cupit ante videri."

Virg. Buc. Ecl. 3.

There have been some men who have thought that the exercise of the mind was only agreeable, by anticipating the reputation which it might give. But, however strongly the motive of fame may operate on the minds of some, yet the proposition when attempted to be made general, is confuted by daily experience. How often do we employ whole hours in reading and meditation, without the least view to futurity, and merely to gratify the present moment? Does not this prove, that, independent of any other incentive, there is a pleasure inherent in whatever exercises the mind without fatiguing it?

This principle does not hold good of the *mind* only, but is equally applicable to every other component part of our being. There is an agreeable sensation annexed to whatever exercises the organs of the *body* without weakening them; and in the sentiments or emotions of the *heart*, whatever keeps clear of the tumult of the passions, is attended with a degree of pleasure. Proofs of these positions might be brought innumerable, but would probably be unnecessary. Most of the ancient philosophers have laid them down, as the foundation of their ideas of human perfection: and there are few persons, I believe, of any reflection and experience, who have not felt

the truth of them in themselves, or observed it in others. Illustrations might, perhaps, be more agreeable than proofs; but in a subject of such an extent, and which embraces no less than the whole circle of physiology, ethics, and *Belles Lettres*, it is necessary to confine oneself, and I shall therefore do no more at present, than offer to the Society some few imperfect remarks on such works of art, as give exercise to the mind, and come, chiefly under the province of that faculty of the understanding, known by the name of *Taste*. This choice is not altogether arbitrary. Mere intellectual pleasures, however agreeable in themselves, by overstraining the mind, become at length painful. Organic enjoyments last only as long as we are in vigour. But the pleasures of the eye and the ear, as Lord Kaims ingeniously observes, in his *Elements of Criticism*, holding the middle way between these two, are particularly fitted to occupy the mind without exhausting it. They relax it after intense study, and restore it to its proper tone, after the satiety and disgust, caused by the mere pleasures of the senses: they tend therefore most essentially to prove the principle I mean to illustrate.

We shall find accordingly that the agreeable sensations we receive from the productions of the fine arts, are, in a great measure, owing to the order and symmetry which enable the mind to take in, without labour, all the different parts of them. It is by this that rhyme becomes agreeable in poetry. Some have contended indeed, that this return of the same sounds, invented in the Gothic ages, ought to be classed among the Acrostics, Anagrams, and such other frivolous productions, whose only merit lies in their difficulty.

difficulty. They instance the Greeks and the Romans, whose poetry, far more harmonious than ours, charms the sense and delights the ear, without the help of rhyme. But they do not seem to have attended sufficiently to the use of poetry, and the nature of the ancient languages. Verses are made to be sung, or to be rehearsed. From the mouth of the actor, the musician, or the reader, whoever he may be, they are supposed to pass into the minds of a whole people; and their composition is the more perfect, the more readily they present themselves to the memory.

The Greek and Latin tongues, by means of their long and short syllables, and the various measures into which they may be reduced, form a kind of *chaunt*, *melody*, or *noted air*, which the memory can easily lay hold of, and therefore, the return of the same sounds, becoming useless, would cause nothing but a disagreeable repetition.

Our modern languages have not the same advantage, or possess it, at least, in a much less degree. The blank verse of the English, German, and Italian, except in very few shining exceptions, seems (as was quoted some time ago, in a very ingenious paper presented to this Society) *to be verse only to the eye*, or depends at least so much on the skilfulness of the reader, as not to obtain the effect above-mentioned, with by far the greatest part of those who read them. Poems, where it is used, are not popular: the ideas they convey, the sentiments they mean to inculcate, however forcibly expressed, do not easily recur to the memory: and, I dare say, that for one person who remembers a passage

from *Milton*, *Young* or *Akenside*, there are twenty who will quote some from *Pope*, *Dryden*, or *Prior*.

This controversy has long been decided in *France*, where, notwithstanding the strenuous efforts of one of its greatest poets (*Monfieur de la Motte*) rhyme has kept in poetry the dominion, which the nature of the French language incontestably gave it.

In *England*, where a *Shakespeare* and a *Milton* have written, the matter seems yet to be *sub Judice*. It would ill become me, as a young man, and a foreigner, to be that judge; but I may be indulged in supporting what I have alledged here in favour of rhyme, by the opinion of the best critic now living in this nation, *Dr. Johnson*, who, admiring the powers of *Milton*, and the amazing dignity given to his sentiments, by a versification which he otherwise rather disapproves, adds, "He that thinks himself capable of astonishing, may write blank verse: but those that hope only to please, must condescend to rhyme*."

Another general objection has been brought against rhyme. "How comes it, says *Monfieur de la Motte*, that this monotony, which you affirm to be, by its nature, so agreeable in poetry, is almost constantly so unpleasant in a sister-art, in music?" To this might be answered, that the chief object of the musician being to delight by the sounds, he cannot succeed better, than by varying them judiciously: whereas, a Poet is not satisfied with charming the ears of his audience; he wishes to impress on their memory
a series

* *Dr. Johnson's Life of Milton.*

a series of ideas, of sentiments, of expressions; and there are none of his verses which he would not be glad to engrave, with indelible characters, on the hearts of all mankind. He avails himself, therefore, of the rhyme which modern languages offer him, as the most favourable help towards the attaining of his purpose.

But to return to our subject, from which I must beg pardon for having wandered so far. Imitation, which is the principle of all the fine arts, is another species of symmetry, whether it acts by means of colour, of sounds, of gestures, or of words. The objects it presents, easily take hold of our imagination, by the comparison we make of them with objects already known to us.

Aristotle and his followers have maintained, that the pleasure produced in the mind, by the representation of any object, was owing to its acquiring by that means a new degree of knowledge. This opinion seems wrong, because it allows no difference between a just and an unfair representation; nor any gradation of pleasure, from the different degrees of execution. The mind every way makes a new acquisition of knowledge, and must, therefore, receive agreeable sensations alike, from the *Iliad* of Homer, and the *Thebaid* of Statius; the pictures of Raphael, and those of a sign-painter; the music of Handel, and the uncouth notes of an Irish piper.

Other philosophers have asserted, that the representation of an object pleases, only by its interesting the passions. And so far it is true, that the soul cannot be moved, or strongly affected without it. But does not even the least interesting object make a slight impression of pleasure, at

least on the surface of the soul, if it is well represented, and if an exact symmetry is to be seen between the picture and the original? Every body must have felt it; and it proceeds from this principal law in the nature of our sensations—that any object becomes agreeable, whose parts are so formed, and so disposed, as to present the mind with an easy, clear, and distinct idea of the whole.

What is called *Contrast* in painting, poetry, and eloquence, is another sort of symmetry, which, by bringing contrary objects near to each other, sets off the features of the one, by the comparison we make of them with the features of the other. This relation has been taken from nature, in whose works it seldom fails of having a pleasing effect. It is from it that the views in *Switzerland*, and in other mountainous countries, are so particularly agreeable. The dissimilitude of the objects which the eye embraces, renders them all more striking, and helps the mind to get a clearer idea of the whole. Thus, when skilfully applied to the productions of art, contrast is generally attended with great success. We accordingly read that the ancient sculptors, in order to set off the beauty of a *Venus*, a *Grace*, or an *Apollo*, used to place them in a niche formed in the statue of a *Fawn*, or a *Satyr*; and *Virgil*, in order to paint more strongly the agitation of *Dido's* heart, places the scene of her agonies in the night, when *Morpheus* spread his peaceful influence over all the rest of mankind.

There are besides symmetry, certain *relations* or *proportions*, which the mind easily conceives; and which therefore become agreeable. Thus, in architecture, for instance, the height of the porticos, in regular buildings, is double the breadth;

breadth; the height of the entablature, is a fourth, and that of the pedestal, a third of the height of the column. All eminent architects, among the different proportions adapted to their design, have always made choice of those, which the mind could comprehend without any difficulty. The same may be observed in music. Of all concords, the *unison* and the *octave* should be the most agreeable, because they excite more vibrations in the fibres of the ear; but the pleasure we receive from this enchanting art, depends more on the mind, than on the organ adapted to convey it. The *fifth* is the most agreeable of all concords, because it presents to the mind a proportion, the finding out of which gives it a degree of exercise that causes no weariness, consequently no disgust.

Some compositions there are in music, which please only profound musicians, and strike, perhaps, the rest of the hearers, as harsh and discordant. May not this be owing to the very fine taste of the former, by which they are enabled, in the midst of seeming dissonances, to find out relations which do not affect ears less exercised than theirs?

The analogy which we find in all the works of nature, allows us to conjecture that the same law, which determines the agreeableness of sounds, has also an influence upon other objects of our senses. Some colours, for instance, set together, give an agreeable sensation to the eye, and more so, than if they appeared single. The same principle may, perhaps, be extended to smells, and to flavours, with some restrictions, however; for, though it may be generally asserted, that those which are salubrious are agreeable; yet it must be

be owned, that their agreeableness does not always seem to depend on their salubrity.

But it is not just proportion and symmetrical relation alone that renders the works of the fine arts agreeable. They are chiefly made so by one principal object or common end, to which all their different parts are adapted, and which enables the mind the more easily to comprehend, and to retain them.

Wisdom in morality, has been defined—The having one good purpose in view, and using the best means to attain that purpose. So *beauty*, in the imitative arts, might be said to consist, in the choice of a good object, and in making every thing tend to the expression of it, as to one common end. Certain it is, that this correspondence of the parts with the whole, is to be considered, as the first and principal cause of agreeable sensations. It is alone sufficient to give beauty to the most simple objects; and, if other embellishments are wanted, it becomes the standard of their propriety, and the rule by which we can determine, whether they are real beauties, or only shining blemishes. But to give the mind an easier and more agreeable perception of the object, art has still gone farther. Among all these parts which are made to refer to one common end, a principal one is chosen, to which all others are subordinate, and which becomes like a center of re-union for them. Architecture can illustrate this. Unacquainted with the real beauties of their art, the Gothic architects never failed to place, on both sides of the body of their buildings, such enormous wings, or rather masses of stone, as almost totally eclipsed it, and kept the sight divided and undetermined. *Bromante, Palladio*, and after them most of the modern architects,

fects, taught, perhaps, by *Vitruvius*, but certainly more acquainted than their predecessors with what would strike the eyes agreeably, have placed, in the middle of their buildings, a principal part, which, eminent above the rest, gives the sight a fixed point, from which it can glance over all the rest, and so enable the mind to get, at once, a clear and distinct idea of the whole.

All sculptors, in those works, where the eye might be divided by the number of figures, such as groups, *entaglios*, *basso-relievos*, shew great attention to this rule, and always chuse a principal object to fix the sight of the beholders. The three *Rhodian* artists, whose joint work, according to the elder *Pliny* *, has produced the famous group of *Luocoon*, which now stands in the *Belvidere* at *Rome*, seem to have had that principle strongly in view, in the disposition of their figures. The Society, I trust, will forgive me, if, by way of illustration, I here join a description of that celebrated monument of human powers, which *Michael Angelo* himself, a wonder of modern times, used to call a miracle of art. This description I shall, for the most part, take from a *French* book, which deserves to be better known in this country, from whence so many annually go to visit the classical ground of *Italy*, and so many in vain, from the want of proper guides. I mean, *Le Description historique et critique*

* "Sicut in Laocoonte, qui est in Titi domo, opus omnibus, et picturæ et statuariæ artis, antefendum, ex uno lapide, cum et liberos, draconum, mirabiles nexos, de Consilii sententiâ fecere, summi Artifices, *Agriander*, *Polidorus*, et *Athenedorus*, *Rhodii*."

PLIN. Hist. Nat. Lib. XXXVI. cap. 5.

que de l'Italie, par Mons. l'Abbé Richard, 6 vol. 12^{mo}. Paris 1769. In English, An historical and critical Description of Italy. By Abbé Richard. Six vols. 12^{mo}.

The group of *Laocoon* was found in the *Thermes*, or *Baths* of *Titus*, about the year 1506, under the pontificate of *Julius II.* who immediately bought it from the possessor of the field, where it had been dug out. The figures are higher than nature, and of so beautiful white marble, that the sight of it alone charms the eye. The workmanship is exquisite, of such a noble style, and such a correctness of execution, as bespeak it a work of the best *Grecian* age. It is not the *Laocoon* described by *Virgil*, as rending the sky with his shrieks, struggling hard for his life, and roaring, like a bull flying from the altar where he has been wounded.

“Clamores simul horridos ad sidera tollit,
Quales mugitus, fugit cum saucius aras
Taurus.”

VIRG. *Æneid.* II.

“His roaring fills the flitting air around.
Thus, when an ox receives a glancing wound,
He breaks his hands, the fatal altar flies,
And, with loud bellowings, breaks the yielding skies.”

DRYDEN.

It is not that man, execrated by a whole people, for having discharged a spear against the horse consecrated to *Minerva*, and whom the vengeance of the Gods pursues.

“Scelus expendisse merentem
Laocoonta ferunt, sacrum, qui cuspide robur
Læserit.”

VIRG. *Ibid.*

--- “The

"The general cry
Proclaims *Laocoon* justly doom'd to die,
Whose hand the will of *Pallas* had withstood,
And dar'd to violate the fabled woods."

DRYDEN.

It is a wretched parent who feels his strength exhausted; and is ready to sink under the accumulated weight, of exquisite pain, and deep felt affliction. His mouth half opened, and his eyes lifted up to heaven, seem to call for assistance from the Gods; though despair at the same instant overwhelms him at the sight of his own fate, and that of his unfortunate sons, half smothered and devoured by the monsters, who crush them all three. The expression of that group is admirable: but the sculptors have distinguished a principal object in it: for, although the sons are equally well executed, and the one to the left in particular, claims our sympathy, by the horrid state of pain in which he is represented, (one of the serpents beginning to tear open his side) yet the father attracts the chief notice. He is that principal part of the whole, to which all others are referred; and it is by that judicious subordination and reference, that the artists have found means to impress the spectator with all the sentiments they meant to convey, and which, without labour to the mind, give it all the pleasure such a representation is able to produce.

The pleasure we receive from a good painting, is also chiefly owing to this subordination of parts, and reference of them to the principal object. Painters call it *composition*; and those masters have obtained the first rank among them, who have been most attentive to it. It was

Raphael's

Raphael's and *Ruben's* forte; and, being the happy result of great genius, combined with a well cultivated taste, is always sure of causing the most agreeable sensations to the mind, that contemplates the effects of it.

In poetry, but particularly in epic and dramatic performances, the observation or neglect of this rule becomes, likewise, the test, of the pleasure they afford to a person of taste. The different actors that appear in the narration, or on the scene, must all concur in their different stations to set off the main object, and keep the attention fixed upon it, or else, the mind, distracted with a multiplicity of objects, that seem to lay an equal claim to its notice, and perhaps to its feelings, grows weary, disgusted, and indifferent to them all. *Unity of action*, in painting and in poetry, is another consequence of the attention of artists to the principle I meant to illustrate. For nothing can be more satisfactory to the mind, than to take in, as it were, with a glance, a multitude of facts connected together, by their mutual relation to some great and important action. One may introduce, indeed, in a poem, several *fables* or *plots*, and collect in it, as it were in a gallery of pictures, a series of portraits. It is what *Ovid*, *Statius*, *Arifto*, *Shakespeare*, in his historical plays, and several others, have done. But, many centuries before the oldest of them, the great genius of *Homer* had conceived, that it would be presenting a spectacle far more agreeable to the mind, if a multitude of persons were collected together in the same picture, and were made to contribute to one and the same action; and upon that idea he formed the plan of the epic poem.

Many

Many years after him, *Æschylus*, the first who gave some order and some propriety to the drama, took from the epic poem the plan of *tragedy*, which he made to be, the representation of an event unfolded in all its circumstances. That great poet likewise understood, that this representation would far more please the mind, if all the scenes of it were connected by some principal action which would help the memory to retain them easily.

He carried, moreover, this idea still farther, and to the *unity of action*, joined those of time and place. *Sophocles* and *Euripides*, but especially the former, followed him pretty strictly, and *Aristotle* drew his rules from their practice. Swayed by the authority of great names, and, perhaps, led away too far by this principle, that there is a pleasure inherent in whatever enables the mind to get a clear and distinct perception of the object presented to it, the *French* critics defended, and the *French* dramatic poets wrote after these rules. In *England*, the amazing genius of *Shakespeare*, probably unacquainted with *Aristotle* and his precepts, having early, and in general happily, soared above all restraints, gave, perhaps, a bias to the taste of the nation; or a sanction, at least, to future dramatic authors, for not attending scrupulously to the strict unities. These, however, were also defended by the *English* critics, and, in theory, admitted by the best poets: but the practice did not correspond; and there is not at present a theatre in *Europe* in which these rules are less observed.

I do not mean this, as an absolute reproach. Convinced, as I am, that the pleasures of the heart are much superior to those of the mind, I think, that rules invented to give ease and pleasure

sure to the latter, may often be sacrificed to a multitude of interesting events and situations, that raise strong emotions in the former, and strike it forcibly. But, at the same time, illusion being the charm of theatrical representations, care ought to be taken not to destroy it, nor diminish the concern and sympathy of the spectators, by too great a deviation from probability. If, on the stage, an old man were to play the part of a young one, if, the scene being in a palace, the sceneries were to present trees and landscapes to our view, if the dresses did not correspond, in some degree to the dignity of the persons represented, all these discordances would offend us.

The same is applicable to the deviation from the three unities. If, in a drama, the principal actions are multiplied, if, in the space of a few hours, many centuries are made to elapse, if the spectator is transported in an instant from one part of the world to another, all these absurdities become so many warnings against the falsity of the spectacle; and a voice seems to issue out of them, which bids us not to give sincere tears to feigned misfortunes.

Such are the arguments of the critics, who follow the rules of *Aristotle*. Lord *Kaims*, on the other side, proves, from the different nature of the Grecian and the modern drama, that the unities of time and place are, by no means, so necessary with us, as they were with the ancients.

The interruption of the representation, on our theatre, between the different acts, gives the mind a facility of supposing any length of time, or change of place; and it becomes not more

difficult

difficult for the spectator, at the beginning of an act, to imagine a new place, or a different time, than it was at first, to imagine himself at *Athens*, or in a period of time two thousand years back.

But the same freedom cannot be taken with the unity of action. The pleasure which the mind, as we observed above, receives from a chain of facts connected together, and tending to one common end, renders this unity essential, alike in epic and dramatic compositions. Every thing, however beautiful in itself, that breaks this chain, or interrupts this relation, looks like an excrescence, and becomes unpleasant. An epic poem, with two principal actions like a play, with two main plots, would soon confuse and tire the reader and the spectator; and so far do the rules of *Aristotle* agree with nature. An *episode* and an *under-plot* may be allowed for the sake of variety, but they must be connected with the principal action, or else they become great blemishes. *Milton*, in this respect, as indeed in many others, has the advantage over *Homer* and *Virgil*. His episode of the battle of angels, and the creation of the world, is more intimately connected with his subject, than the description of *Achilles'* shield, or even the descent of *Aeneas* into hell. Far from breaking the unity of action, it rather strengthens it, by making us acquainted with the cause of what we have read, and of what is to follow. It is, therefore, productive of great mental enjoyment, as there is no relation that pleases the mind more than that of cause and effect.

This great rule, of the unity of action, is an insuperable objection to tragi-comedy; and inattention to it shocks persons of taste in some of

our

our best plays. In the *Provoked Husband*, for instance, all the scenes relating to the family of the *Wrongheads*, however laughable, and characteristic in themselves, are certainly to be accounted blemishes, because they stop the tide of sentiment raised by the interesting scenes between a sensible, loving, and justly incensed husband, and a giddy, extravagant, though good-natured wife.

This dissertation on the unities will also be looked upon, I fear, as an excrescence to this paper, already too long; but I indulged myself in it with the thought, that it might, probably, give room to some interesting conversation—the avowed purpose of the essays presented to this society—and in that light, I beg, and I hope for, your indulgence.

From what has been read, it will appear, that *regularity* and *contrast*, *proportion* and *congruity*, *uniformity*, *variety*, and *simplicity*, in the objects presented to the mind, give it an exercise, which is attended with neither trouble nor fatigue, and which is therefore agreeable.

That these sources of pleasure exist in our nature, seems evident, from their being uniform and universal; and that they were given us for wise and good purposes, is what no one can dispute, who considers, with what care the great Author of our being has provided us with all means of happiness. They evidently contribute to it, by adding beauty to the objects that surround us, and by procuring us enjoyments far superior to those of the senses. In this view only, it would be incumbent upon us to cultivate the natural relish we have for them: but *Cicero*, in his admirable work *de Officiis*, shews us a still nobler use, for which they may have been intended.

tended. After having enumerated the qualities which man has in common with other animals, and some of the advantages that distinguish him, he proceeds to say,

----- “Necverò illa parva vis Naturæ est, rationisque, quod unum hoc animal sentit quid sit ordo; quid sit, quod deceat; in factis dictisque qui modus. Itaque eorum ipsorum quæ aspectu sentiuntur, nullum aliud animal, pulchritudinem, venustatem, convenientiam partium sentit. Quam similitudinem Natura, ratioque ab oculis ad animum transferens, multo etiam magis pulchritudinem, constantiam, ordinem in consiliis, factisque conservandum putat: cavetque, ne quid indecorè, effæminat evè, faciat; tum in omnibus et opinionibus et factis, ne quid libidinose aut faciat aut cogitet. Quibus ex rebus conflatur, et efficitur, id quod quærimus, *Honestum*.”

Cicer. de Officiis. Lib. I.

“The energy of nature and of human reason are strikingly displayed in this circumstance, that man is the only animal endued with the perception of order, decency and propriety in words and in actions. He alone discerns, in visible objects, beauty, gracefulness and symmetry. And, transferring the analogy, from the sight to the mind, he becomes sensible, that superior beauty, regularity, and order, should distinguish the intention and behaviour; and cautiously avoids whatever is unbecoming and unmanly, and particularly every loose imagination and expression. An attention to these things forms and constitutes that *Honestum*, which is the subject of our enquiry.”

Lord

Lord Kaims, whom every lover of genuine criticism must read with pleasure, and quote with gratitude, observes also, that, "The reasonings employed in the fine arts, are of the same kind with those which regulate our conduct. Mathematical and metaphysical reasonings (says he) have no tendency to improve social intercourse, nor are they applicable to the common affairs of life; but a just taste of the fine arts, derived from rational principles, furnishes elegant subjects for conversation, and prepares us for acting in the social state, with dignity and propriety*."

Thus we find an analogy and a connection formed, between the pleasures of taste, and the sense of morality. The same principle of propriety which leads us to the discovery of what is beautiful and pleasing to the mind, when applied to the heart, will help us to find what is virtuous, what is honest, and what constitutes the true pleasure arising from its emotions. What I have attempted to illustrate, may then be carried farther, and we may pronounce, that, as there is a pleasure inherent in whatever exercises the mind, without fatiguing it, so there is a pleasing sensation annexed to every emotion of the heart, that is not poisoned by fear, hatred, envy, revenge, and such other irregular and disorderly passions.

* Introduction to Elements of Criticism.

*On the Pleasure which the Mind in many Cases
receives from contemplating Scenes of Distress.*
By T. Barnes, D. D.

[*From Memoirs of the Literary and Philosophical
Society of Manchester.*]

Suave mari magno, turbantibus æquora ventis,
E terrâ alterius magnum spectare periculum.
Non quia vexari quæquam est jucunda voluptas ;
Sed quibus ipse malis careas, quia cernere suave est.

LUCRETIVS.

THE pleasure described by the Poet in this motto, and of which he has mentioned so striking and apposite an instance, may perhaps, at first, seem of so singular and astonishing a nature, that some may be disposed to doubt of its existence. But that it does exist, in the case here referred to, and in many others of a similar kind, is an undoubted fact : and it may not appear an useless or disagreeable entertainment, to trace its source in the human breast, together with the final cause, for which it was implanted there by our benevolent Creator.

“ Shall I, it may be said, feel complacency in beholding a scene, in which many of my fellow-creatures are agonizing with terror, whilst I can neither diminish their danger, nor, by my sympathy, divide their anguish? At the sight of another’s woe, does not my bosom naturally
feel

feel pain? Do I not share in his sensations? And is not this strong and exquisite sensibility intended by my Maker, to urge me on to active, and immediate assistance? These sensations are indeed attended with a noble pleasure, when I can, by friendly attention, or by benevolent communication, soothe the sorrows of the poor mourner, snatch him from impending danger, or supply his pressing wants. But, in general, where my sympathy is of no avail to the wretched sufferer, I fly from the spectacle of his misery, unable, or unwilling to endure a pain which is not allayed by the sweet satisfaction of doing good."

It will be incumbent on us, in answer to these objections, in the first place, to prove the reality of the feeling, the cause of which, in the human constitution, we here attempt to explore.

Mr. Addison, in his beautiful papers on the Pleasures of the Imagination*, has observed, "that objects or scenes, which, when real, gave disgust or pain, in description, often become beautiful and agreeable. Thus, even a dunghill may, by the charms of poetic imagery, excite pleasure and entertainment. Scenes of this nature, dignified by apt and striking description, we regard with something of the same feelings, with which we look upon a dead monster.

----- Informe cadaver
 Protrahitur : nequeunt expleri corda tuendo
 Terribiles oculos, vultum, villosaque fetis
 Pectora semiferi, atque extinctos faucibus ignes.

VIRGIL.

"This, he observes, is more particularly the case, where the description raises a ferment in the mind,

* Spectator, sixth volume, No. 418.

mind, and works with violence upon the passions. One would wonder, adds he, how it comes to pass, that passions, which are very unpleasant at all other times, are very agreeable, when excited by proper description ; such as terror, dejection, grief, &c. This pleasure arises from the reflection we make upon ourselves, whilst reading it, that we are not in danger from them. When we read of wounds, death, &c. our pleasure does not rise so properly, from the grief, which these melancholy descriptions give us, as from the secret comparison we make of ourselves, with those who suffer. We should not feel the same kind of pleasure, if we actually saw a person lying under the tortures, that we meet with in a description."

And yet, upon the principle assigned by this amiable writer, we might feel the same, or even higher pleasure, from the actual view of distress, than from any description ; because the comparison of ourselves with the sufferer would be more vivid, and, consequently, the feeling more intense. I would only observe, that the cause which he assigns for this pleasure, is the very same with that assigned by Lucretius, in our motto. Mr. Addison applies it to the description ; the Poet, to the actual contemplation, of affecting scenes. In both, the pleasure is supposed to originate in selfishness. But, wherever the social passions are deeply interested, as they are supposed to be, from the pathetic description, or the still more pathetic survey, of the sufferings of another, the sympathetic feelings will, of themselves, at once, and previous to all reflection, become a source of agreeable and tender emotions. They will thus dignify and enhance the satisfaction, if any such be felt, arising merely from the consideration of our own personal security. And the more en-

tirely we enter into the scene, by losing all ideas of its being either past, or fabulous, the more perfectly we forget ourselves, and are absorbed in the feeling,—the more exquisite is the sensation.

But, as our subsequent speculations will chiefly turn upon the pleasure derived from real scenes of calamity, and not from those which are imaginary, it may be expected, that we adduce instances, in proof, that such pleasure is felt, by persons very different in their taste, and mental cultivation.

I will not mention the horrid joy, with which the savage casts his eye upon the agonies and contortions of his expiring prisoner—expiring in all the pangs which artificial cruelty can inflict! Nor will I turn your eye to the almost equally savage sons of antient Rome, when the majesty of the Roman people could rush, with eagerness and transport, to behold hundreds of Gladiators contending in fatal conflict, and, probably, more than half the number extended, weltering in blood, and writhing in agony, upon the plain. Nor will I mention the Spanish Bull-Feasts; nor the fervent acclamations of an English Mob around their fellow-creatures, when engaged in furious battle, in which it is possible, that some of the combatants may receive a mortal blow, and be hurried, dreadful thought! in this awful state, to the bar of his Judge.

Let us survey the multitudes, which, in every part of the kingdom, always attend an execution. It may perhaps be said that, in all places, the vulgar have little of the sensibility and tenderness of more polished bosoms. But, in the last-mentioned instance, an execution, there is no exultation in the sufferings of the poor criminal. He is regarded by every eye, with the most melting

melting compassion. The whole assembly sympathizes with him, in his unhappy situation. An awful stillness prevails, at the dreadful moment. Many are wrung with unutterable sensations : and prayer and silence declare, more loudly than any language could, the interest they feel in his distress. Should a reprieve come to rescue him from death, how great is the general triumph and congratulation ! And, probably, in this multitude you will find, not the mere vulgar herd alone, but the man of superior knowledge, and of more refined sensibility ; who, led by some strong principle, which we wish to explain, feels a pleasure greater than all the pain, great and exquisite as one should imagine it to be, from such a spectacle.

The man who condemns many of the scenes we have already mentioned, as barbarous and shocking, would, probably, run with the greatest eagerness to some high cliff, overhanging the ocean, to see it swelled into tempest, though a poor vessel, or even a fleet of vessels, were to appear as one part of the dreadful scenery, now lifted to the heavens on the foaming surge, now plunged deep into the fathomless abyss, and now dashed upon the rocks, where they are, in a moment, shivered into fragments, and, with all their mariners, entombed in the wave. Or to vary the question a little ; Who would not be forward to stand safe on the top of some mountain or tower, adjoining to a field of battle, in which two armies meet in desperate conflict, though, probably, thousands may soon lie before him prostrate on the ground, and the whole field present the most horrid scenes of carnage and desolation ?

That, in all these cases, pleasure predominates in the compounded feeling, is plain from hence, because you continue to survey the scene; whereas when pain became the stronger sensation, you would certainly retire. I was lately in company with a Gentleman, who described to me, in very glowing and picturesque colours, an engagement between two privateers, of which he had been a spectator, from one of the cliffs on the eastern coast of England. Several lives were lost; and the contest was long, doubtful, and severe. Having this subject in my thoughts, I asked him, whether he felt pleasure from the spectacle? He answered with great energy, that he would not have missed the sight for a very considerable sum. His tone, and manner proved, that he spoke from his heart.

Cultivation may, indeed, have produced some minuter differences, in the taste and feelings of different minds. Those, whose sensibilities have not been refined by education or science, may feel the pleasure, in a more gross and brutal form. But do not the most polished natures feel a similar, a kindred pleasure, in the deep-wrought distresses of the well-imagined scene? Here the endeavour is, to introduce whatever is dreadful or pathetic, whatever can harrow up the feelings, or extort the tear. And the deeper, and more tragical the scene becomes, the more it agitates the several passions of terror, grief or pity—the more intensely it delights, even the most polished minds. They seem to enjoy the various and vivid emotions of contending passions. They love to have the tear trembling in the eye, and to feel the whole soul rapt in thrilling sensations. For that moment, they seem to forget the fiction; and afterwards commend that exhibition

bition most, in which they most entirely lost sight of the author, and of their own situation, and were alive to all the unutterable vibrations of strong or melting sensibility.

Taking it, then, for granted, that in the contemplation of many scenes of distress, both imaginary and real, a gratification is felt, let us endeavour to account for it, by mentioning some of those principles, woven into the web of human nature, by its benevolent Creator, on which that gratification depends.

Dr. Akenfide, with his accustomed strength and brilliancy of colouring, describes, and accounts for it, in the following manner. I will make no apology for the length of the quotation.

----- " Behold the ways
Of heaven's eternal destiny to man !
For ever just, benevolent and wise !
That *Virtue's* awful steps, howe'er pursued
By vexing fortune, and intrusive pain,
Should never be divided from her chaste,
Her fair attendant, *Pleasure*. Need I urge
Thy tardy thought, through all the various round
Of this existence, that thy softening soul
At length may learn, what energy the hand
Of *Virtue* mingles in the bitter tide
Of *Passion*, swelling with distress and pain,
To mitigate the sharp, with gracious drops
Of cordial *Pleasure*. Ask the faithful youth,
Why the cold urn of her, whom long he loved,
So often fills his arms ? So often draws
His lonely footsteps, at the silent hour,
To pay the mournful tribute of his tears ?
O ! he will tell thee, that the wealth of worlds
Should ne'er seduce his bosom to forego
That sacred hour, when stealing from the noise
Of care and envy, sweet remembrance soothes,
With virtue's kindest looks, his aching breast,
And turns his tears to rapture. Ask the croud,
Which flies impatient from the village-walk

To climb the neighbouring cliffs, when far below
 The cruel winds have hurled upon the coast
 Some helpless bark : whilst sacred pity melts
 The general eye, or Terror's icy hand
 Smites their distorted limbs, or horrent hair,
 While every mother closer to her breast
 Catches her child ; and, pointing where the waves
 Foam through the shattered vessel, shrieks aloud,
 As one poor wretch, that spreads his piteous arms
 For succour, swallowed by the roaring surge,
 As now another, dashed against the rock,
 Drops lifeless down. O dearest thou indeed
 No kind endearment here, by nature given,
 'To mutual terror, and compassion's tears ?
 No sweetly melting softness, which attracts
 O'er all that edge of pain, the social powers,
 To this their proper action, and their end ?"

The Poet pursues the sentiment in the same animated imagery, describing the strong, but pleasurable sensations, which the soul feels, in reading the sufferings of heroes, who nobly died in the cause of liberty, and their country :

----- " When the pious band
 Of youths, who fought for freedom, and their fires,
 Lie side by side in gore."

Or, in the strong movements of indignation and revenge against the tyrant, who invades that liberty, and enslaves that country :

----- " When the patriot's tear
 Starts from thine eye, and thy extended arm
 In fancy hurls the thunderbolt of Jove,
 To fire the impious wreath on Philip's brow,
 Or dash Octavius from his trophied car ;
 Say,—Does thy secret soul repine to taste
 The big distress ? Or, would'st thou then exchange
 Those heart-ennobling sorrows for the lot
 Of him, who sits amid the gaudy herd

Of mute barbarians, bending to his nod,
And bears aloft his gold-invested front,
And says within himself, "I am a King,
" And wherefore should the clamorous voice of woe
" Intrude upon mine ear?"

The sentiment of this charming and moral poet is, that sympathetic feelings are virtuous, and therefore pleasant. And from the whole, he deduces this important conclusion, that every virtuous emotion must be agreeable, and that this is the sanction and the reward of virtue. The thought is amiable. The conclusion noble. But still the solution appears to me to be imperfect.

We have already said, that the pleasure arising from the contemplation of distressful scenes is a compounded feeling, arising from several distinct sources in the human breast. The kind and degree of the sensation must depend upon the various blendings of the several ingredients which enter into the composition. The cause assigned by Mr. Addison, the sense of our own security, may be supposed to have some share in the mass of feelings. That of Dr. Akenfide may be allowed to have a still larger proportion. —Let us attempt to trace some of the rest.

There are few principles in human nature of more general and important influence, than that of *Sympathy*. A late ingenious writer, led by the fashionable idea of simplifying all the springs of human nature into one source, has, in his beautiful *Theory of Moral Sentiments*, endeavoured to analyse a very large number of the feelings of the heart into sympathetic vibration. Though it appears to me most probable, that the human mind, like the human body, possesses va-

rious and distinct springs of action and of happiness, yet he has shewn, in an amazing diversity of instances, the operation and importance of this principle of human nature. Let us apply it to our present subject.

We naturally sympathize with the passions of others. But, if the passions they appear to feel be not those of mere distress alone; if, amidst scenes of calamity, they display fortitude, generosity and forgiveness; if, "rising superior to the cloud of ills which covers them," they nobly stand firm, collected, and patient; here a still higher source of pleasure opens upon us, from complacency, admiration, and that unutterable sympathy, which the heart feels with virtuous and heroic minds. By the operation of this principle, we place ourselves in their situation; we feel, as it were, some share of that conscious integrity and peace which they must enjoy. Hence, as before observed, the pleasure will vary, both as to its nature and degree, according to the scene and characters before us. The shock of contending armies in the field,—the ocean wrought to tempest, and covered with the wreck of shattered vessels,—and a worthy family silently, yet nobly, bearing up against a multitude of surrounding sorrows, will excite very different emotions, because the component parts of the pleasurable sensation consist of very different materials. They all excite admiration; but admiration, how diversified, both as to its degree and its cause! These several ingredients may, doubtless, be so blended together, that the pleasure shall make but a very small part of the mixed sensation. The more agreeable tints may bear little proportion to the terrifying red, or the gloomy black.

In

In many of the instances which have been mentioned, the pleasure must arise chiefly, if not solely, from the circumstances or accompaniments of the scene. The sublime feelings, excited by the view of an agitated ocean, relieve and soften those occasioned by the shipwreck. And the awe, excited by the presence of thousands of men, acting as with one soul, and displaying magnanimity and firmness, in the most solemn trial, tempers those sensations of horror and of pain, which would arise from the field of battle.

The gratification we are attempting to account for, depends also, in a very considerable degree, upon a principle of human nature, implanted in it for the wisest ends, the *exercise* which it gives to the mind, by rousing it to energy and feeling. Nothing is so insupportable as that langour and *ennui*, for the full expression of which our language does not afford a term. How agreeable it is to have the soul called forth to exertion and sensibility, let the Gamester witness, who, unable to endure the lassitude and sameness of unanimated luxury, runs with eagerness to the place, where, probably, await him all the irritation and agony of tumultuous passions.

Again: It is a law of our nature, That opposite passions, when felt in succession, and, above all, when felt at the same moment, heighten and increase each other. Ease succeeding pain, certainty after suspense, friendship after aversion, are unspeakably stronger, than if they had not been thus contrasted. In this conflict of feelings, the mind rises from passive to active energy. It is roused to intense sensation; and it enjoys that peculiar, exquisite, and complex feeling, in

which, as in many articles of our table, the acid and the sweet, the pleasurable and painful pungencies are so happily mixed together, as to render the united sensation amazingly more strong and delightful.

We have not yet mentioned the principle of *curiosity*, that busy and active power, which appears so early, continues almost unimpaired so long, and to which, for the wisest ends, is annexed so great a sense of enjoyment. To this principle, rather than to a love of cruelty, would I ascribe that pleasure which children sometimes seem to feel from torturing flies and lesser animals. They have not yet formed an idea of the pain they inflict. It is, indeed, of unspeakable consequence that this practice be checked as soon and as effectually as possible, because it is so important, that they learn to connect the ideas of pleasure and pain with the motions and actions of the animal creation. And to this principle may we also refer no small share of that pleasure in the contemplation of distressful scenes, the springs of which, in the human heart, we are now endeavouring to open.

To *curiosity*, then—to *sympathy*—to *mental exertion*—to the idea of our own *security*—and to the *strong feelings* occasioned by viewing the actions and passions of mankind in *interesting situations*, do we ascribe that gratification which the mind feels from the survey of many scenes of sorrow. We have called it a *pleasure*; but it will approach towards, or recede from pleasure, according to the nature and proportion of the ingredients of which the sensation is composed. In some cases pain will predominate. In *others* there will be exquisite enjoyment.

The

The final cause of this constitution of the human mind is probably, that by means of this strong sensation, the soul may be preserved in continual and vigorous motion—that its feelings may be kept lively and tender—that it may learn to practise the virtues it admires—and to assist those to whom its sympathy can reach—and that it may thus be led, by these social exercises of the heart, to soften with compassion—to expand with benevolence—and generously to assist in every case, in which assistance can be given. An end this sufficient,

----- “To assert eternal Providence,
And justify the ways of God to man.”

**OBSERVATIONS on BLINDNESS, and on the
Employment of the other Senses to supply the Loss
of SIGHT. By Mr. BEW.**

[*From Memoirs of the Literary and Philosophical
Society of Manchester.*]

----- tenebrasque necesse 'st
Non radii solis, neque lucida tela diei
Discutiant -----

LUCRET.

AMONGST the various accidents and calamities, to which the human species are subjected, there are none that excite compassion, or call forth our benevolent aid more powerfully, than blindness. The blind man, in all ages and countries, has ever been allowed an indisputable claim on the good offices of his fellow-creatures; his necessities have generally been supplied with sacred care; and his genius, if it approached to excellence, has been respected with a degree of reverence, superior to what is usually bestowed, on such as are possessed of the faculty of sight.

The faculty of sight, indeed, is justly considered as superior to any of the other senses. Hearing, tasting, and smelling, when compared with vision, appear very limited in their powers and determinations; and though the sense of touch may possess the most general, and accurate power of conveying the ideas of the various
modifications,

modifications of matter to the mind; yet the comprehensiveness, together with the instantaneous celerity, with which vision displays to us the wonders of Nature, or the varieties of Art, far transcend any of the perceptions, that the touch, or the other senses are able to furnish us with. It is, perhaps, on this account, that we figuratively employ the term, *seeing*, in acknowledging the conscious evidence of reason and truth; and even extend the application, as the most expressive, to one of the distinguishing attributes of Almighty perfection.

In no part of the human fabric, or even throughout the whole of nature, with which we are acquainted, are there more evident marks of exquisite perfection and wisdom, than in what relates to the sense of seeing; whether we direct our attention to the wonderful regularity, order, minuteness, and velocity of the rays of light, which minister to this sense, or to the structure and formation of the little organ, in which this faculty is destined to reside. "With a ball and socket, (as a learned and " elegant Philosopher *, beautifully observes) " of an inch diameter, we are enabled, in an " instant of time, without changing our place, " to perceive the disposition of an army, the " figure of a palace, and the variety of a landscape;" and not only, as he farther remarks, to " find our way through the pathless ocean, " traverse the globe of the earth, determine its " figure and dimensions, and delineate every " region of it:" But,

- - - " Breaking

* Dr. Reid.

----- " Breaking hence, take our ardent flight
 " Thro' the blue infinite,"

ascertain the order, revolutions and distances of the planetary orbs, and even form probable conjectures on

----- " Every star
 " Which the clear concave of a winter's night
 " Pours on the eye or astronomic tube,
 " Far stretching, snatches from the dark abyss."

THOMSON.

In contemplating, therefore, the extensive and almost unlimited properties of vision, we not only find our gratitude warmed and elevated to piety and devotion, but are likewise conscious of an involuntary impulse, that urges us to exert our endeavours, towards the assistance of such as are unfortunately deprived of this noble faculty, whenever they are presented to our notice.

And here, again, we have every motive to inspire us with admiration of the providential wisdom and benevolence, displayed by the divine Author of our existence. For, notwithstanding the great and comprehensive powers of sight, there is little of the actual knowledge acquired by this faculty, that may not, by attentive and patient perseverance, be communicated to the man who has been doomed to darkness from his birth. The bigot, or the enthusiast, who condemns the researches of philosophy, and erroneously pronounces them to be incompatible with religion, perceives, with astonishment, the blind enabled to expatiate on light or colours; on reflection, refraction, and on the various subjects, from which we might naturally suppose they

they would be excluded by the deprivation of sight, and satisfies himself with abruptly referring the whole to the immediate dispensation of the Deity. The philosopher, on the other hand, though with willing submission, he ultimately attributes the effects to Omnipotence, is, nevertheless desirous to avoid the censure passed on the servant, "*who buried his talent in a napkin*"; and ventures to exert the abilities with which he may be endowed in endeavouring to investigate the means by which the effects are ordained to be accomplished, to the end, that the interests of humanity may be served with greater certainty.

The powerful influence of exercise and habit upon the intellectual, as well as upon the corporeal faculties, are too well known and acknowledged, to require much illustration. The muscles of any part of the body, acquire peculiar vigour and fullness by habitual exercise; and the same is remarkable, though in a still higher degree with respect to the effects of exercise and habit, on the faculties of the mind. From this wise regulation in the economy of nature, results a train of resources, which the blind are found capable of deriving, from the exercise of the other senses; and which may be so far perfected, as to compensate, in a great measure, for the loss of the darling sense of sight. The delicacy and precision, with which some eminent blind people have employed the other senses, particularly *hearing* and *touch*, would, indeed, exceed the bounds of credibility, were we not assured of the facts, as well from actual experience, as from undoubted authorities.

Dr. Saunderson lost his sight by the small-pox, so early in his infancy, that he did not remember to have ever seen. He had no more ideas of light than if he had been born blind. Notwithstanding this misfortune, he acquired such profound and perfect knowledge in the science of mathematics, that, by the influence of his merit only, he was appointed to the professorship in the University of Cambridge. The address of this celebrated philosopher, was no ways inferior to the knowledge he possessed; a circumstance, which we do not always meet with in those who have the full powers of sight. His lectures on the different branches of mathematics, natural philosophy, astronomy, and optics, were remarkably clear and intelligible. Fully aware of the difficulties young minds have to contend with, from the abstruseness in which the subjects of natural philosophy are usually involved, his endeavours were successfully directed to obviate and remove these obstructions; and to furnish a method, at the same time, comprehensive, natural, and easy to be understood.

Dr. Saunderson's sensation of touch, as is usual with blind people, was very exquisite; and it was by means of this sense, that he acquired many of his principal ideas. He distinguished, with astonishing nicety, the peculiar properties of bodies, that depended on the roughness or smoothness of their surfaces. A remarkable instance is given of his nice accuracy in this respect. A series of Roman medals, some of which were true, and others false, were presented to his touch. Dr. Saunderson, by running his fingers over them, was soon able to distinguish the genuine antiques, from those
that

that were counterfeited; though the latter had been executed, with such exactness of imitation, as to deceive a connoisseur, who only judged by the eye. But, says the professor, "I, who had not that sense to trust to, could easily feel a roughness in the new cast, sufficient to distinguish them by."

The impression made by the approach of bodies nearer to him, or their being removed farther off; and the different states of the atmosphere, were distinguishable to him by the same delicate sense of touch; and his sense of hearing was refined to a similar degree of perfection. He could readily ascertain the fifth part of a note of music. He not only distinguished and remembered the different people he conversed with, by the peculiar sounds of their voices, but, in some measure, places also. Judging by the sounds of the pavements, of the courts and piazzas, and the reflection of these sounds from the walls, he remembered the different variations, so as to be able to recollect the places, pretty exactly, when conducted to them afterwards.

We might produce a great variety of instances, both antient and modern, where blind persons have excelled in different departments of science; and particularly in the several branches of mathematics*. But the attachment
which

* Diodotus, the preceptor of Cicero, is represented as attaching himself with greater assiduity to the Science of Mathematics after he became blind.

"Diodotus Stoicus, cæcus multos annos, nostræ domi vixit: is vero, quod credibile vix esset, cum in Philosophia multo etiam magis assidue quam antea versaretur tum quod sine oculis fieri possit. Geometriæ munus tuebatur, precipiens discipulis, unde, quo, quamque lineam scriberent."

CIC. Tusc. disp. L. V. 39.

Didymus

which these unfortunate people display, for the pleasing pursuits of music and poetry, is still more general. The powerful influence of verbal expression, when communicated to the blind, in the form of poetry, and the congenial ideas it inspires, are really astonishing. Of this we have a recent proof in Dr. Blacklock of Edinburgh. This amiable gentleman was, I believe, either born blind, or became so very soon after his birth: yet, -we find no defects, in those beautiful poems he has exhibited to the world, that can be attributed to his want of sight; on the contrary, we meet with descriptions of visual scenes and objects, as beautiful, expressive, and just, as if he had actually been possessed of the faculty of seeing, and had drawn his descriptions from an enraptured survey of the variegated prospects of nature. Whereas we must be convinced, when we accurately consider the matter, that the poetic enthusiasm, which inspired him, and excited these imitative powers, could only be produced by the various combination of sounds which were conveyed, by words, to his imagination.

The influence of music is still more generally to be observed than that of poetry. Music, almost without exception, appears to be the favourite amusement of the blind. There is no other employment of the mind, religious contemplation excepted, that seems so well adapted to

Didymus of Alexandria, is celebrated by St. Jerom and the historian Cassiodorus, as a prodigy in logic and mathematics, though blind from his infancy. The latter writer, likewise speaks of one Eusebius, an Asiatic, who, though blind, distinguished himself highly in all kinds of learning.

to soothe the soul, and dissipate the melancholy ideas, which, it may naturally be expected, will sometimes pervade the dispositions of those who are utterly bereft of sight. This, together with the beneficial influence that results from the practice of this delightful art, by quickening and perfecting the sense of hearing, is a matter that deserves the most serious attention. The celebrated professor, just now mentioned, excelled in performing on the flute, in his youth; and the refinement of his ear, has been very justly attributed to his early attention to music. It is not, therefore, surprising that so many blind people have distinguished themselves in this science. Stanley and Parry were deprived of their sight in early infancy; yet both these gentlemen have displayed extraordinary proofs of their abilities, not only as composers and performers of music, but likewise in matters that, at a first view, we might be apt to consider as peculiar to those who are fully possessed of the faculty of vision. Their separate reputations, as musicians, are sufficiently known and acknowledged. The style of Stanley is truly his own; and his execution on the organ, equal, if not superior, to any of his cotemporary performers on that grand instrument. Parry may be revered as the British bard of modern times. The halls of the Cambrian Chief resound with the melodious vibrations of his harp, and he has united the refinements of taste and elegance to the rude, but expressive modulations of antiquity.

I pass over a number of instances, that might be offered to your notice, and proceed to give some account of Dr. Henry Moyes, the elegant reader

reader on philosophical chemistry; whose lectures the greatest part of this society had the satisfaction of attending, and whose personal acquaintance several of us have enjoyed.

This intelligent philosopher, like the celebrated professor of Cambridge before-mentioned, lost his sight by the small-pox, in his early infancy. He never recollected to have seen: "but the first traces of memory I have," says he, "are in some confused ideas of the solar system." He had the good fortune to be born in a country where learning of every kind is highly cultivated, and to be brought up in a family devoted to learning.

Possessed of native genius, and ardent in his application, he made rapid advances in various departments of erudition; and not only acquired the fundamental principles of mechanics, music, and the languages; but likewise entered deeply into the investigation of the profounder sciences; and displayed an acute and general knowledge of geometry, optics, algebra; of astronomy, chemistry; and, in short, of most of the branches of the Newtonian philosophy.

Mechanical exercises were the favourite employments of his infant years. At a very early age he made himself acquainted with the use of edged tools so perfectly, that, notwithstanding his intire blindness, he was able to make little wind-mills; and he even constructed a loom, with his own hands, which still shew the cicatrices of wounds he received in the execution of these juvenile exploits.

By a most agreeable intimacy, and frequent intercourse, which I enjoyed, with this accomplished blind gentleman, whilst he resided in Manchester, I had an opportunity of repeatedly observing

observing the peculiar manner in which he arranged his ideas, and acquired his information. Whenever he was introduced into company, I remarked that he continued some time silent. The sound directed him to judge of the dimensions of the room, and the different voices of the number of persons that were present. His distinction, in these respects, was very accurate; and his memory so retentive, that he seldom was mistaken. I have known him instantly recognize a person on first hearing him speak, though more than two years had elapsed since the time of their last meeting. He determined, pretty nearly, the stature of those he was speaking with, by the direction of their voices; and he made tolerable conjectures, respecting their tempers and dispositions, by the manner in which they conducted their conversation.

It must be observed that this Gentleman's eyes were not totally insensible to intense light. The rays refracted through a prism, when sufficiently vivid, produced certain distinguishable effects on them. The red gave him a disagreeable sensation, which he compared to the touch of a saw. As the colours declined in violence, the harshness lessened, until the green afforded a sensation that was highly pleasing to him; and which he described as conveying an idea similar to what he felt in running his hand over smooth polished surfaces. Polished surfaces, meandering streams, and gentle declivities, were the figures by which he expressed his ideas of beauty. Rugged rocks, irregular points, and boisterous elements, furnished him with expressions for terror and disgust. He excelled in the charms

charms of conversation; was happy in his allusions to visual objects; and discoursed on the nature, composition, and beauty of colours, with pertinence and precision.

Doctor Moyes was a striking instance of the power the human soul possesses, of finding resources of satisfaction, even under the most rigorous calamities. Though involved "in ever during darkness," and excluded from the charming views of silent or animated nature; though dependent on an undertaking for the means of his subsistence, the success of which was very precarious; in short, though destitute of other support than his genius, and under the mercenary protection of a person, whose integrity he suspected—still Dr. Moyes was generally chearful and apparently happy. Indeed it must afford much pleasure to the feeling heart to observe this hilarity of temper prevail, almost universally, with the blind. Though "cut off from the ways of men, and the contemplation of the human face divine," they have this consolation, they are exempt from the discernment, and contagious influence of those painful emotions of the soul, that are visible on the countenance, and which hypocrisy itself can scarcely conceal. This disposition, likewise, may be considered as an internal evidence of the native worth of the human mind; that thus supports its dignity and chearfulness under one of the severest misfortunes that can possibly befall us. Nor is this chearful resignation peculiar to those who have been blind from their birth; we find it also generally prevail with such as have lost their sight, even at a more advanced age; and who must, undoubtedly, feel the misfortune with the utmost anguish. The distressing

distressing recollection, which memory must present of former enjoyments, we find, however, soon subsides. Gentler and more pleasing reflections succeed. Contemplation takes her residence in her proper province, the human mind; and the blind, submissively and chearfully resign themselves to the will of Heaven, and the benevolent protection of the less unfortunate of their fellow-creatures. And hard, indeed, is the heart of him who will not stretch out his hand to succour the blind; or who, by injustice, illiberality, or unkindness, adds a sting to the conscious dependence, to which, whilst they live, they must ever be subjected.

The blind people I have hitherto selected to speak of, it may be remarked, were such as had their native faculties excited and matured by early and attentive education. But we shall find, even where education has been wanting, and the blind left, in a great measure, to the simple exertions of nature, that the natural faculties themselves make surprising efforts towards supplying the deficiency of sight. I shall bring forward to your notice a person well known in this neighbourhood, of which he is a native. This is one John Metcalf, who, like the gentlemen already mentioned, became blind at a very early age, so as to be entirely unconscious of light and its various effects. This man passed the younger part of his life as a waggoner, and occasionally as a guide in intricate roads during the night, or when the tracks were covered with snow. Strange as this may appear to those who can see, the employment he has since undertaken is still more extraordinary: it is one of the last to which we could suppose a blind man would ever turn his attention. His present occupation

occupation is that of a projector and surveyor of highways in difficult and mountainous parts. With the assistance only of a long staff, I have several times met this man traversing the roads, ascending precipices, exploring valleys, and investigating their several extents, forms, and situations, so as to answer his designs in the best manner. The plans which he designs, and the estimates he makes, are done in a method peculiar to himself; and which he cannot well convey the meaning of to others. His abilities, in this respect, are, nevertheless, so great, that he finds constant employment. Most of the roads over the Peak in Derbyshire have been altered by his directions, particularly those in the vicinity of Buxton: and he is, at this time, constructing a new one betwixt Wilmslow and Congleton, with a view to open a communication to the great London road, without being obliged to pass over the mountains*. These instances will, I am persuaded, be sufficient to prove, how effectually, by proper exercise, the other senses may be refined and perfected, so as, in many respects, to supply the loss of sight. The sensations of smell and taste, indeed, are so very

* Since this paper was written, and had the honour of being delivered to the Society, I have met this blind projector of the roads, who was alone as usual; and amongst other conversation, I made some enquiries respecting this new road. It was really astonishing to hear with what accuracy he described the courses, and the nature of the different soils, through which it was conducted. Having mentioned to him a boggy piece of ground it passed through, he observed, that "that was the only place he had doubts concerning; and that he was apprehensive they had, contrary to his directions, been too sparing of their materials."

very limited, that they do not seem capable of yielding many peculiar advantages to blind people: but the perceptions of hearing and touch, as we have seen, may be applied to purposes wonderfully extensive.

By the nice distinction of touch and sound, the blind man not only acquires knowledge with respect to persons and situations; is not only warned from danger, and excited to pleasure; but, by means of these delicate faculties, he is enabled to conceive many of the visual qualities of bodies, and to distinguish them with certain precision. I do not mean to infer, that a blind man annexes the same ideas to visual qualities, as are excited in the minds of those who are possessed of the perfect faculty of sight. I only wish to observe, that he forms a general conception of their characters, by the analogy which he finds they bear to qualities he is acquainted with, by means of his other senses. Thus, for example, if we present a violet to him, and demand of him what ideas he has of its qualities; he will be able to answer with great precision respecting its smell, &c. which, as well as the name of the violet, are soft, sweet, and pleasing. But, with regard to the colour, he will be wholly unable to conceive any idea of it, except what takes place from very distant analogies: the plaintive melody of the flute, the soft smoothness of surfaces, &c. In like manner, by apposite associations, he may compare the intense colour of scarlet to the glow of a furnace, the noise of a trumpet, or the odour of aromatics; because they severally affect his senses with intense excitements.

But whatever amazing information the senses of hearing and touch may afford the blind; these powers would, nevertheless, be transient and ineffectual, were not the impressions and ideas they excite in the mind, preserved and matured by the assistance of the memory. It is chiefly by the assistance of the memory that the blind acquire the exquisite advantages derived from the other senses. In this respect providential benevolence seems to have determined the greatest compensation for the severe deprivation of the sense of sight. The soul of the blind man, undistracted by the never ceasing variety which is always present to the organs of vision, when awake, pursues its internal perceptions and contemplations with unconfounded serenity. The blind unlettered projector of roads could reply to me, when I expressed myself surprised at the accuracy of his discriminations, "that there was
" nothing surprising in the matter; You, Sir, says he, " can have recourse to your eye-sight
" whenever you want to see or examine any
" thing; whereas I have only my memory to
" trust to. There is one advantage, however," he remarked, that he possessed, " The readiness
" with which you view an object at pleasure,
" prevents the necessity of fixing the ideas of it
" deeply in your mind, and the impressions,
" in general, become quickly obliterated. On
" the contrary, the information I possess, being
" acquired with greater difficulty, is, on that
" very account so firmly fixed on the memory,
" as to be almost indelible." Such, indeed, is the wonderful influence resulting from the union of exercise and habit, on the faculties of the blind, that the permanency of their knowledge,

ledge, in a great measure, compensates for the labour required in its attainment!

The instantaneous facility, with which, by the aid of sight, we are able to ascertain the peculiarities of any place we survey, and the ease with which we review and recognize them, renders dependence on the memory, to us, less necessary. For instance, the dimensions of the apartment I sit in; the furniture, &c. will, by the organs of vision, be immediately presented to the mind of any stranger who may call on me, so that he will be able in a moment, to recollect the whole whenever he repeats his visit, to the same place. This kind of information can only be acquired by the blind man, in consequence of the most patient attention. He is to be led round the several parts of the room, his finger conducted to the surfaces of the furniture, pictures, &c. before he can possibly form any idea with respect to the place. But when, by means of the perceptions of touch, and a necessary degree of information, he conceives a regular train of distinguishing ideas, his mind associates them with such tenacity, that he seldom has occasion to repeat his inquiries.

It is this accurate and retentive power of the memory, that enables the blind mathematician to make exact calculations and inferences; to work problems in algebra, and in infinite series; to conceive, with precision, the different effects that bodies must produce to the sight, by their being nearer or farther off; by their moving in a straight or in an oblique line; and that directs his investigation with respect to the principles of projection, and the various rules of perspective.

It must here be remarked, that though the blind man may conceive the properties of figure and extension with certain accuracy; yet it does not follow that he would be able to distinguish them, with the same certainty, by vision, provided that faculty were immediately bestowed on him. On the contrary, the question started by Mr. Molineux*, was found to prove exactly as that philosopher expected, in the extraordinary case of a blind youth, whom Mr. Cheselden had the good fortune to bring to sight, by couching, at thirteen years of age. This young man at his first feeling the impressions of objects on the organs of vision, imagined every thing he saw touched his eyes; nor was he able to discriminate one object from another, however different their forms. When things that were before known to him by touching, were presented to him, he considered them attentively, in order to recognize them; but on a sudden he felt himself confused, from the multitude of objects that crowded for admission, and the whole was involved in obscurity. It appears, therefore, from the above fact, as well as from a due examination of the subject, that those who make use of their eyes, for the first time, see only surfaces and colours; and have no conception of the visible effects of light and projection, until they learn it from experience. In fact, if we carefully attend to the operation of our own mind, we shall find that the visible appearances of objects are seldom accurately attended to, unless we are employed in delineating those objects. The visible appearance of things is varied according to the direction of the

* Locke on the Understanding, vol. I. p. 107.

the light, the position and the distance, with respect to the beholder: yet, as we are conscious from experience, of the identity, the real figure is conceived in its actual proportion, and the visible or perspective appearance is considered only as a sign or indication.

The accurate painter is well aware of this operation of the mind, and in delineating his objects, and relieving them with the distribution of light and shade, is carefully attentive to avoid forming conclusions, before he accurately considers the premises. The effect produced by a well managed picture, sufficiently evinces the actual appearance of bodies, according to their point of view; and the impressions they must make on the organs of sight, when employed previous to the influence of reason, and the correction of the judgment. The painter, who exerts the imitative powers of his art to deceive the eye, does not merely draw the out-line of his figure, and colour it with the exact uniform tinge it naturally displays: he surveys it in one certain point of view, and then proceeds to delineate and adapt his tints, as if the figure were, in reality, adhering to the canvass. It is no wonder, therefore, that the young Gentleman, just mentioned, was astonished to find, on examining the pictures, presented to him with his finger, that they had not the same projection, with the objects they represented. This, as well as the art of diminishing a figure, and still preserving the resemblance, would evidently be as much an enigma, to a person just possessed of vision, as the circumstance of the Mirror, mentioned by *M. Diderot* *.

F 3

It

* Vid les OEuvres de M. Diderot, tom. II. Art. Lettres sur les Aveugles, &c.

It is more than probable, therefore, that the blind man has no ideas of colour, except, as has been already remarked, what are derived from a kind of distant analogy, regulated by the associating powers of the mind, and preserved by the memory; and, indeed, most of the persons of this class I have conversed with, have frankly confessed themselves wholly ignorant of its qualities. Nor is this deficiency in the forming of ideas peculiar to the sense of sight. A deaf man would be just as much embarrassed with respect to the qualities of sound; and the same may be observed with respect to the other senses.

In the course of my inquiries, however, on this subject, it occurred to me, that I might possibly derive some new matter for observation, from the recollection of the blind man's perceptions whilst under the influence of his dreams. In the usual silent hours of repose, when the exercise of the memory is, in a great measure, suspended; and the unfettered imagination displays its powers in a very peculiar manner; I conceived it might be possible for the blind to experience some transient impressions relative to visual qualities. It is true Mr. Locke gives it as his opinion, "that the dreams of sleeping men are made up of waking men's ideas; though," he allows, "they are, for the most part, oddly put together." The impressions of dreams, it must be acknowledged, are too fleeting to admit of much investigation; and our recollection of them is liable to the greatest uncertainty: yet, notwithstanding the opinion of this great philosopher, there are few, I am persuaded,

suaded, who have not felt themselves sometimes affected, during their dreams, in a manner which they could by no means account for, or reconcile with any circumstance that had previously taken place in real life. And though I have not been able to gratify my curiosity to its full extent, yet I have gained sufficient information to convince me that the blind feel impressions in dreaming, in some degree similar to the visible appearances of bodies. A blind Gentleman, with whom I have lately conversed, clearly proves to me, that he is conscious of the figure, though he cannot distinguish the varieties of the human countenance: and from the confused efforts he makes to explain himself, it may be perceived that he feels himself alarmed with new sensations that bear a strong relation to our ideas of light and colour, but which he finds it impossible to describe because he cannot fix on any comparative idea whereby to explain himself. These dreams, my intelligent friend informs me, are always painful, and, as may naturally be expected, the impressions are extremely transient and unsatisfactory.

But it is not the blind only, who are unable to trace the various effects produced by light and colour. There are persons whose organs of vision are so imperfectly formed, that they cannot distinguish colours though they see the objects perfectly. In the *Philosophical Transactions* we have an account of a man who knew no difference of colour whatever; and there is an ingenious person, within the circle of our acquaintance, whose knowledge in Perspective, as well as in the other branches of Natural Philosophy, is unquestionable; yet who finds

himself deficient in discerning the difference of some colours which he knows to exist, and which are distinguishable to perfect vision. In particular I think I have heard him mention that the sensation he felt, from the colours of brown and green, had no obvious difference, provided they were diffused with equal degrees of intenseness.

But these speculations, however curious and entertaining, were not the principal objects I had in view, when I sat down to consider the subject of blindness. It may be remarked, that in the sketches relative to blind people, I have offered to your notice, I have purposely avoided speaking of such as had ever possessed the faculty of vision so as to recollect it with any degree of accuracy: and I have been the more particular in my account of Dr. Moyes, and the blind projector of roads, because I had an opportunity of availing myself of immediate information from them with respect to such peculiarities as it was not in my power to derive from the writings of the few authors who have treated on this subject*. In tracing the progress, and marking the degrees of perfection, to which the most celebrated blind people have carried the exertions of the other senses to supply the loss of sight; I was persuaded that farther observations and discoveries might be made, which might be applied to advantage in the education of blind children; and also in rendering more perfect the different inventions

* Besides occasional hints which I have acquired from conversing with various blind people, whose names are not mentioned; I have particular acknowledgments to make to Mr. Cheese, the organist of the collegiate church in Manchester, for the satisfaction he has afforded me in many of my inquiries.

inventions that have already been devised, in order to facilitate their information, and the means of their improvement: and I flattered myself, that these matters would be deemed sufficiently important, to engage the attention of the learned members of this Society. Instances too frequently occur, that most powerfully call for the generosity and compassion of mankind; and though our abilities rarely arrive at the divine perfection of *giving sight to the blind*, we shall always experience a conscious benevolent satisfaction, in ministering to their knowledge, their convenience and happiness.

An Attempt to shew that a Taste for the Beauties of Nature and the Fine Arts has no Influence favourable to Morals. By the Rev. Samuel Hall, A. M.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

Nullius addictus jurare in verba magistri.

HOR. Ep. I. Lib. I.

Scilicet uni æquus virtuti.

HOR. Sat. I. Lib. I.

THE Society, which I have now the honour to address, has lately been presented with several ingenious papers on *Taste*. It may, therefore, be thought necessary to make an apology, for bringing forward a subject, which has been already so well investigated.

Were I to pursue the track of those who have gone before, it would be the highest presumption to suppose, that any observations I could make, would be deserving attention. It would be to offer the Society a few scanty gleanings, after the full harvest had been gathered in. But I have no design to invade the province of another. I shall neither examine the principles, on which taste is founded; nor enquire, whether it is more the child of nature, or of education, or the joint product of both. I shall confine my remarks to the *effects* which *taste*, however produced, may be supposed to have on the *moral character*; and shall endeavour

your to shew, that its influence on the heart, is not favourable to virtue.

A distinguished Member of this Society, in whom the Scholar and the Gentleman are most happily united, has, in an elegant paper*, supported the reverse of this proposition; which, it must be owned, is no singular opinion. It is maintained by very high authorities in the literary world; particularly, by Lord Kaimes, in his *Elements of Criticism*; by Gerrard, in his *Essay on Taste*; and indeed, by many others, who have professedly treated on this subject. It may, perhaps, be the prevailing and popular opinion of the present day. But are we thence to conclude, that it is founded in truth? Doctrines are sometimes fashioned "to the varying hour;" and many popular opinions are governed by no better motive, than fancy or caprice.

To me, I own, it does not appear surprizing, that writers on taste have generally been led to suppose, that its influence must be friendly to virtue. When a subject has been long contemplated, the mind becomes, in some measure, enamoured of it, views it with complacency, and, from an over-weening fondness, bestows attributes and perfections, which are not naturally its own. How often has this been the case with some new discovery in philosophy! Its ingenious advocate is seldom willing to confine its effects to the rank it justly holds. He would have it considered, not only as a law of nature, operating in its proper sphere; but

as

* The Paper here alluded to has been published since it was read to the Society, in the volume of *Moral Dissertations*, by T. Percival, M. D. &c.

as a great and universal cause, to which all other causes must be subordinate; and will even attempt to solve all the phenomena of nature by its means. Thus, *electricity* was lately a favourite theory, which, for awhile, seemed to bid fair for universal empire in the philosophical world. And thus, some useful discoveries in medicine have been rashly exalted into panaceas, or universal remedies. The same species of enthusiasm has, indeed, at different periods, prevailed in every science. Hence, the vast variety of new theories, and systems, which have sprung up; and for awhile amused the world, and which have, at length, yielded their usurpation to some new conqueror, which will probably be equally short-lived.

But to return from this digression. The advocates for the influence of Taste on the Moral Character, have generally confounded that faculty with the *moral sense*. They seem to be persuaded, that the same power, which discovers, and relishes the beauties of nature and of art, must equally discover, and relish the beauty, the order, the harmony of virtue. Lord Shaftesbury* has fully adopted this notion. His disciple Hutcheson†, with some trifling distinctions, has embraced the same opinion. The very ingenious author of the *Elements of Criticism* tells us, that there is a strong and close affinity between taste, and the moral sense. "Taste, says he, in the fine arts, goes hand in hand with the moral sense, to which indeed it is nearly allied ‡."

This

* Lord Shaftesbury's *Characteristics* passim.

† Hutcheson's *Inquiry into the Orig. of our Ideas of Beauty, &c.*

‡ *Elem. Crit. Introduc.* p. 7.

This natural connection, and close alliance, of taste with the moral sense, may, perhaps, be very justly disputed; as taste, I apprehend, must be the joint result of delicate, corporeal, and intellectual powers; whilst what is usually understood by a moral sense, must be of a nature altogether intellectual.

But let us, for a moment, suppose that such an union is really established; and that taste can take cognizance of the merit or demerit of actions with the same ease and precision, that it pronounces on the abilities of the statuary, or of the painter. Will it necessarily follow, that such a taste must always be productive of a virtuous conduct? It will not be disputed*, that taste generally operates in some favourite direction. It does not embrace all the beauties of nature, or of art, with equal relish; nor explore every science, even of those esteemed elegant and refined, with the same keenness of discernment. The painter is not always possessed of an ear finely tuned to music; nor the musician always delighted with the elegance and vigour of poetical composition. Nature seldom produces an accomplished master, unless her efforts have been directed to one particular object. And in vain would be the attempt to rise to excellence, in any art or science, save that which is congenial to the taste. Some men, indeed, seem to be possessed of, what may be termed, a general taste; and are capable of, at least, moderate attainments in every branch. But taste, like every other energy, perhaps is weaker, in proportion as it is diffused.

Upon this supposition, it is evident, a man may have an exquisite taste for some particular
art

* Brown's *Essays on the Characteristics*. Sect. II. 8.

art or science, and yet no taste for virtue. To this species of beauty the faculty may be so little sensible, as to produce no effects. In such a case, virtue only shares the fate of many other things, which are confessedly objects of taste, and which are rejected, because the capacity adapted to them is so weak, that it may be said to be wanting.

But let us suppose, that taste really exercises some of the privileges and powers of the moral sense. The advocates for its practical influence would not gain much, by this very ample concession. The mere sense of the beauty of virtue (and it is not pretended, that any thing further can be the object of taste) abstracted from every other consideration, will scarcely be thought sufficient to support her cause. The theory appears more specious, than solid; more pleasing, than efficacious. When dressed with the art, the ingenuity, and the eloquence of a Shaftesbury, it may entertain and amuse, the heart being supposed in a state of ease, calm and indifferent. But its effects will not be sufficiently strong with the generality of mankind, to spur them on to action. We survey the lovely picture, are convinced that it is a fine one, yet turn aside to some other object, that agitates our hopes and fears.

The doctrine may, probably, suit the retired temper of the philosopher, or the apathy of the stoic: but is ill calculated for "the busy haunts of men," and the tumults of social life. The man of taste admires the beauty and expression exhibited in the works of a Raphael, or a Michael Angelo, without feeling the slightest wish to become an artist, and to rival these great masters. May he not, in like manner, view the charms
of

of virtue, and of a moral conduct, without making one single effort to become a moralist, or a virtuous man?

I should imagine it impossible for any person, possessed of the least sensibility, to read the character of Sir C. Grandison, drawn with so much delicacy by Richardson, and not admire and approve, the elegance of manners and purity of morals, with which he has adorned his hero. But is it certain that he will bestow more than his approbation? Will he entertain a single thought of copying the amiable portrait? To admire and reverence virtue, is a tribute extorted even from vice. The most profligate and wicked characters experience a secret consciousness that every preference is due to virtue, and are not insensible to her superior loveliness. But does this sense operate on the mind with sufficient force to influence or to reclaim? *Video meliora proboque, deteriora sequor*, must be the language of every sinner whose faculties are not utterly depraved.

“It is a remarkable circumstance (says Brown in his Essay on the Characteristics *) that, in the decline of both the Greek and Roman states, when religion had lost its credit and efficacy, this very taste, this species of philosophy, usurped its place, and became the common study and amusement both of the vile and vulgar.” Quintilian, no doubt, had a view to this, in the following passage. *Nunc autem, quæ vel ut propria philosophiæ asseruntur, passim tractamus omnes. Quis enim modo de justo, æquo, ac bono, non et vir pessimus loquitur?*

The

* Essay II. Sect. 10.

The truth seems to be, that a mere sense of the beauty of virtue cannot operate as a coercive power*; and however the theory may please the reasoner in the shade, when the passions stagnate without impulse, and the appetites are secluded from their objects, it will be of little force against the ardor of desire, or the vehemence of rage, amidst the pleasures or conflicts of the world. To counteract the power of temptations, hope must be excited by the prospect of rewards, and fear, by the expectation of punishment. In a word, virtue may owe her panegyric to a Plato or a Shaftesbury, but must derive her efficacy and authority from religion.

From what has been advanced, it appears to me extremely evident that, supposing taste were considered, not only as connected with, but even advanced to the rank of the moral sense, its influence on the heart would be too faint and languid to produce any moral effects. The charms of virtue† may be seen with the eye of speculation, without exciting in us a desire of becoming virtuous; just as an excellent picture or fine prospect may afford us very considerable pleasure, and yet produce not a single wish to dispossess the owners, and to make them ours. And though it may be supposed that a sense of the charms of virtue must naturally give us a prejudice in her favour; yet, will this prejudice be sufficient to keep us steady to her interests, when

* See the Preface to the Preceptor, by Dr. Johnson.

† “Our sense of beauty from objects by which they are constituted good to us, is very distinct from the desire of them, when they are thus constituted.”

HUTCHESON'S Inquiry, &c.

when Vice steps forth, attired with every seductive ornament of taste that can win the affections, and engages the strongest passions of the heart as advocates in her favour?

But we are told, that "taste natural sweetens and harmonizes the temper, and restrains the turbulence of passion, and violence of pursuit*." On this supposition, the beauty of virtue may have considerable effects on a mind already disposed, by calmness and composure, to yield to the gentlest influence.

This reasoning will not easily be supported by experience and matter of fact. The connection between genius and taste is so common, that they may almost be considered as inseparable companions. Genius without taste would be no better than frenzy; and taste, without genius, would be distinguished for nothing but a lifeless accuracy. But genius, it is generally agreed, is united to a warm and inflammable constitution. "If," says an eminent critic, "the imagination be lively, the passions will be strong; true genius seldom resides in a cold and phlegmatic constitution. The same temperament, and the same sensibility, that makes a poet or a painter, will be apt to make a man a lover and a debauchee†." These propensities of nature may be restrained by the dictates of reason, and especially by the awful sanctions of religion; and thus genius and virtue may unite, and adorn the same person. But in vain shall we look for these important effects, from the influence

* *Elements of Criticism. Introduction. page 11.*

Percival on a Taste for the Beauties of Nature.

† Warton's *Essay on the Writings and Genius of Pope.*
Vol. I. page 105.

influence of taste. In vain shall we expect to find, that men of genius and of taste will be always distinguished for the sweetness of their tempers, and the purity of their morals. The irritability of a Pope and a Gray, and the voluptuousness of a Montague and a Chesterfield, may be adduced as instances, amongst numberless others, of the truth of what has been advanced.

But we are further told, "that a taste for the beautiful scenes of nature, not only composes and harmonizes the temper, but disposes the mind to acts of piety and devotion, by raising our ideas from Nature, to Nature's God *." The thought is pleasing and ingenious, but must not be admitted without many exceptions. The impressions made by the beauties of nature will greatly depend on the passions, the habits and the pursuits of the beholder. Let the musician take the "wildly devious walk," his notice will probably be attracted by the melody of the grove, as most nearly related to his favourite art. The eye of the painter will be engaged by the rich landscape that lies before him; and his thoughts will be naturally turned to the effect which might be produced, by a lively transcript on canvas, of so picturesque a scene. While the poet, however struck by the grandeur or elegance of surrounding objects, will only meditate how they would "live in description, and look green in song." It is the calm contemplative mind alone, influenced by religious impressions, that surveys this fair heritage with pious and grateful sentiments towards the Almighty

* Percival on a Taste for the Beauties of Nature.

mighty Creator. A mind thus happily disposed, in the animated language of Shakespear,

" Finds tongues in trees, books in the running brooks,
Sermons in stones, and good in every thing."

I shall now mention a few instances where taste seems to be productive of misfortune and immorality. We frequently see a man of real and acknowledged taste run into all the folly and extravagance of virtue. It is not sufficient for him that he may be regaled with the productions of art and genius in the possession of another. A man of this unhappy turn, feels a restless desire to call them his own. He is perpetually in quest of some new object; but his unfortunate passion grows more violent by indulgence; and, however a new acquisition may gratify for the moment, yet in the end it becomes the source of fresh disquiet. Thus, like Pope's Curio, who,

----- " Restless by his fair one's side,
Sighs for an Otho, and neglects his bride:"

He is perpetually haunted by the demon of taste; his mind becomes fretful, peevish, and dissatisfied; equally incapable of giving or receiving satisfaction. But, should his circumstances be contracted, the consequences are dreadful indeed! He involves his dearest connections in all the miseries of poverty.

" The bailiffs come, rude men, profanely bold,
And bids him turn his Venus into gold."

" No, Sirs!" he cries, " I'll sooner rot in jail!"

" Shall Grecian arts be truck'd for English bail?"

Such

Such heads might make their very bustos laugh :
His daughter starves : but Cleopatra's safe *."

Another is betrayed into a conduct equally ridiculous and fatal, by a taste for the elegancies of life, and domestic refinements. Fancy is ever ready to suggest some new plan to be executed, or improvement to be made. The house is capable of still higher embellishments; and the garden may be laid out in a manner more beautiful. He complies with the suggestions of his refined taste—involves himself in difficulties—and is at length ruined.

The malady of a third is an excessive and sickly kind of delicacy. His feelings are so nice, and his ideas so refined, that he is irritated and vexed with every trifle. He is not only affected

----- "with quick disgust,
From things deform'd, or disarrang'd, or gross
In species †."

Even those objects, which to others afford very considerable pleasure, are seen by him with a joyless indifference. But, indeed, almost every avenue to enjoyment is shut up by this unhappy disease. Yet he nurses it with the greatest assiduity; fancies himself formed of nature's finest clay; and looks with contempt on the coarse delights of his fellow-creatures. By degrees he becomes unfit for the common duties of life, and is cut off from the blessings and advantages of social intercourse.

But

* Young's Satires.

† Akenfide's Pleasures of Imagination.

But we need not appeal to a few instances of individuals. The prevailing manners of whole nations may be brought in proof that taste has no influence favourable to virtue. It is scarcely necessary to remark, that Athens was once the seat of learning, taste and refinement. The liberal arts were cultivated with the greatest care and attention, and rose to a pitch of perfection, which has been generally imitated, but never excelled. A taste for elegance was so universally diffused among all ranks of people, that even a herb-woman, we are told, could detect a very small deviation from propriety of speech*. Taste could not possibly have a fairer field wherein to display its natural effects. But the history† of those times, and the moral lectures of Socrates, sufficiently evince that the Athenians were a people addicted to every kind of sensual pleasure; at once refined and voluptuous, licentious and effeminate.

When a taste for the liberal arts was introduced among the Romans, with the rich spoils of Grecian elegance and ingenuity, can we discover in the history of that wonderful people, a consequent improvement in the habits of virtue? You will say, perhaps, their rugged tempers were softened, and their austere manners refined. But refinement is often remote from virtue; and external graces unconnected with internal beauties. It is true, they improved in all the elegancies of life; but it is equally true, that their native vigour degenerated, into unmanly sloth; and the *Amor Patriæ*, which had carried the Roman name so high, was succeeded by a mean and

* Xenoph. Memorab. passim.

† Rollin's Ancient History, Vol. IV.

and abject selfishness*. Cato seems to have been well aware, that a taste for the enervating arts of Greece, would be productive of these mischievous effects†; and endeavoured by every means in his power, to ward off the threatened evil. But in vain was every remonstrance. A rage for the beautiful productions of genius universally prevailed, and bore down all opposition. And we find the latter Cato, in one of his speeches recorded by Sallust, reproaching his countrymen, in the following warm expressions: *Per Deos immortales, vos ego appello: qui semper Domos, Villas, Signa, Tabulas vestras, pluris quam rempublicam fecistis*‡.

Let me now call your attention to a much later period of history, when taste revived, in the fifteenth century, after a long and gloomy night of Gothic ignorance and barbarity. Fostered by the favour and liberality of the princes of the Medici family, literature and the arts made a rapid progress. But it does not appear, that moral duties made equal advances, or were more generally cultivated. Observe, in what unfavourable colours, the characters of these Medici, the great patrons of genius and learning, are drawn by Lord Orrery, in his Letters from Italy, "If," says he, "you take a view of the princes of the Medici, in a group, you will feel reverence and respect, at one part of the picture, and be struck with horror and amazement, at the remainder. To revere and honour them, you must consider their generosity, their benefactions

* Græcia capta ferum victorem cepit.

HOR. Epist. Lib. II.

† Liv. Lib. 34. C. 4.

‡ Sallust. Bell. Catalinar.

factions to men of learning, their policy, and scientific institutions. To view them with horror and amazement, you need only listen to the undoubted outrages of their private lives; by which you will be convinced, that few or none of the whole race were endued with the softer passions of the human soul. I wish, that in many of their group, their love was not lust; their good nature, ostentation; their dignity, pride; and their sense, cunning."

From these, and numberless instances of refined depravity, which modern times will furnish, one might almost be tempted to conclude, that the effects of taste are so far from being favourable to virtue, that they have rather a pernicious tendency. But I mean not to bring such a heavy charge against a faculty, which, connected with reason and religion, will, doubtless, enlarge the sphere of our innocent enjoyments. I wish only to disprove the affirmative of the proposition, and shew, that taste cannot reasonably be considered as a moral principle of action: that, unassisted by reason and good sense, it becomes subservient to the purposes of folly and extravagance; and that, connected with a base and sensual heart, it unhappily serves to embellish guilt, and gloss over the deformity of vice.

Let taste, however, be cultivated, as the source of many elegant pleasures: but let it ever be cultivated, in subordination to sound morality. Taste can ill supply the want of moral discipline. Where there is no superior principle, to check the assaults of an alluring temptation, the heart must fall an easy prey. A truly virtuous character, set off by a just taste, is not only engaging, but even beneficial to mankind: while, on
the

the contrary, a vicious character, however distinguished for taste and elegance, becomes only, the more finished hypocrite, or the more exquisite voluptuary. In a word, let virtue form the base and the shaft of the column; and I have not the least objection, that taste should furnish the foliage, and ornament the capital.

Remarks on the Knowledge of the Ancients. By
William Falconer, *M. D. F. R. S.*

[*From Memoirs of the Literary and Philosophical
Society of Manchester.*]

THE superiority of the Moderns over the Ancients, in most branches of Natural Philosophy, is generally received as an acknowledged truth, and is, probably, well founded. Nevertheless, I am inclined to think that the ignorance of the ancients has been over-rated, and that several things were known to them, at least as facts and matters of observation, which are not apprehended to be so by the generality of people. Much learning and industry has been bestowed on this subject by the Rev. Mr. Dutens, in his very ingenious Inquiry into the Origin of the Discoveries attributed to the Moderns, to which I beg leave to add a few remarks that have occurred to me in the course of reading. And

I. I believe it is esteemed to be an original discovery of Dr. Black, That water which had been boiled was more easily frozen, than water that had not undergone that operation.

But, That water which had been heated, was by that means rendered easier to be cooled, was well known to the ancients.

Aristotle observes, That water freezes the sooner for having been before heated; and, that this fact was even known to some barbarous

G

people

people upon the Euxine Sea, who made use of Ice as a kind of cement for their huts; and that the water frozen for this purpose, was first heated, in order* that it might concrete the sooner." Pliny† also mentions it as a discovery of Nero, to boil the water that was intended to be frozen, as that hastened its concretion.

Athenæus ‡ also remarks, "that in the Isle Celmolus they placed water in their Refrigeratories which had been heated by the rays of the sun, and, that they reprov'd their servants, if the water they provided for freezing was not previously heated."

There is to this purpose, a curious passage in Hippocrates, in the sixth book and fourth section of the Epidemics; which, though I am unable to clear up, I think has some reference to this subject. The words are as follows.

Υδωρ ἀφελήσθαι, τὸ μὲν ὡς δεχεται τὸν αἶρα, τὸ δὲ μὴ ἐμπλεῖον εἶναι, καὶ ἐπιδημα εἶχειν.

This direction is relative to the preparation of the water, to be drank by the patient, which is ordered to be, such as has been boiled; and part of the preparation was performed, with the water expos'd to the air, and part, with the vessel clos'd up ||.

The

* Aristot. Meteorol. L. I. Cap. 12.

† Plin. Hist. Nat. L. XXXI. Cap. 3.

‡ Athenæi Lib. III. p. 123. 124. Edit. Casaubon.

|| When water is boiled, care should be taken that air should be allowed admission to the vessel, that the vessel be not quite full, and that it have a cover.

FARR'S Transl.

The first, referred to the boiling or heating the water, and the latter, to the cooling of it; as I suppose, it was boiled, to throw out or expel the air, and then closed up that it might not recover it again when cooling, which would have retarded its refrigeration, according to the modern theory. Galen, though he does not explain the meaning quite in the † same manner as I have done, imagines, that Hippocrates alludes to the boiling of water, that was afterwards to be drank cold, as, in the sentence just preceding the former, cold things had been recommended. Galen accounts for the obscurity of this passage, by informing us that these works of Hippocrates were not written for publication, but as private notes to assist the memory.

Galen himself was personally well acquainted with this effect of boiling, in disposing water to cool more rapidly, and to a greater degree. "When," says he, "we wish to render water as cool as possible, we first heat it, then surround with snow the vessel containing it, or if snow be wanting, we place it in the well or stream of a spring, and thus its temperature is more easily changed."

This he ascribes to the rarefaction the water had before undergone, which is evidently not the true cause, as, upon cooling, it would be as much condensed as before. Perhaps, the true cause may be, what is generally assigned, the discharge of the air. But how does this operate

G 2 in

† Galen, however, seems to think, that the water was to be boiled in an open vessel, and, when let down into the Refrigeratory, to be closed up, so as to exclude all air.

Galen Comm. in Lib. VI. §. 4. Epidem. Hippocr.

in promoting the refrigeration? Is it, that after the water has been freed of its air, any part of its latent heat has flown off with it, and thus rendered it more easily accessible to cold? Or is the refrigeration more easy, on account of the discharge of air; as the air, being united with the water, and requiring to be disengaged in freezing, might, by its attraction to the water, require more cold to disengage it, than would have frozen the water, had it not had that attraction to overcome?

It must, however, be remarked, that Galen not only speaks of water that has been previously heated, being more easy to be frozen, but also says, such water is more easily cooled, even to any inferior degree: a fact worthy to be ascertained by experiment.

II. I believe the fact, Of the production of cold by the evaporation of fluids, is esteemed a modern discovery, as it justly may be: but it still appears (though the modern discoverers were not acquainted with it) that it was familiarly known to the ancients, and not only to the Greeks and Romans, but the Egyptians also.

Athenæus mentions, “ that Protagorides, in describing the navigation of Antiochus upon the Nile or Euphrates, relates the method used in that country of cooling liquor, which was, by first heating it by exposure to the sun, and then straining it, and setting it in earthen jars in the highest and most open and exposed part of the building, whilst two boys were employed all the night in keeping the outsides of the jars moist. After this they preserved the coolness of its temperature, by covering the jars with straw.

This

'This (says he) cooled the water to so great a degree, that they felt no want of ice*."

Galen says the method of cooling water, used at Alexandria, was as follows: "About sun-set they poured water which had been first heated, into jars, which they hung up in the highest parts of the buildings, with the windows open, opposite to that point from whence the wind blew. Before sun-rise, they placed the jars upon the ground, and moistened the outside, and covered them with cool and succulent leaves, as of lettuce, &c. in order that the water might retain the cool temperature it had thus acquired †."

The modern method of making ice in the East Indies resembles the above in many respects. Pits are dug in large open plains, places most exposed to circulation of air, and of consequence to evaporation: these are strewed with reeds, in order to admit the circulation of air on all sides, and on these are placed shallow pans of earth filled with water, and the texture of these pans is so porous, as to admit the water to percolate through them, in such a manner, as to keep the outside always moist, and of consequence, producing cold by evaporation. The water used for this purpose has also been previously boiled. It is needless to remark, how much this process resembles those before quoted, and how probable it is, from the immutability of ancient manners, that it was a custom derived from very remote antiquity.

III. Some other discoveries, such as, "The solution of water in air, and that this solution is

G 3

assisted

* Athen. p. 124.

† Galen Comm. in Lib. VI. Epidem. Hippoc. Comm. IV.

assisted by heat and agitation," appear not to have been unknown to the ancients, though their notions hereupon were far from clear.

"The moisture (says Aristotle) that is about the earth, being converted into vapours by the rays of the sun, ascends. When it has arisen, the heat, by whose assistance it had ascended, leaves the vapour (or, as Dr. Black would say, becomes sensible) and then, the vapour again assumes a consistence, and, from being in the form of air, becomes water. Meteorol. L. I. C. 9.

"The reason, says Aristotle, why dew and hoar frost do not concrete in elevated situations, is, that in them the air is much agitated, which dissolves* the consistence of the water." Ibidem. Cap. 10.

Dr. Black's doctrine of Latent Heat, seems not to have been altogether unknown to the ancients.

"Snow, says Aristotle, cannot be formed, without the cold prevails, much heat still remaining in it. For in a cloud, or vapour, there is much heat which remains of that fire, that has absorbed the moisture from the earth." Aristotle here mentions, that heat or fire was still contained in the cloud or vapour, and so far is agreeable to Dr. Black's system; but the latter discovered, that when the condensation took place, the heat, before latent, then became sensible.

IV. The ancients perfectly knew the reason, why the air near the earth was more heated, than in higher situations. Aristotle explains this, from the

* Ο; διαλυει την τοιαυτην συστασιν.

N. E. Συστασις means the consistence, or solid form of any thing, in its primary signification, and is often applied to water. Vide Lex. Budæi. Vox Συστασις.

the reflection of the solar * rays from the surface of the ground; which cause is also assigned by Seneca †. This is, I believe, generally understood to be a discovery of Sir Isaac Newton.

V. Aristotle § assigns a cause for the sudden concretion of Hail Stones, to which he very properly attributes their largeness of size, which I have never before met with, and yet is, perhaps, the true one. He observes, “that hail generally falls most plentifully in hot weather:” and it is to this previous heat, which must have affected the vapour, and the water contained in it, that he ascribes the sudden congelation of the hail, in the same manner as water, previously heated, is found to freeze more easily and suddenly.

VI. The fact || likewise, of the separation of air from water, by freezing the latter, appears to have been not unknown to the ancients. Probably this is what was meant by Hippocrates, when he says, “that the clear, light and sweet parts of the water are dissipated by freezing;”

G 4 an

* ——— εις τον ανω τοπον μαλλον οντα ψυχρον δια το ληγειν εκει τας απο της γης των ακτινων ανακλασεις.

Meteor. Lib. 1. C. 12.

† — quod radii Solis a terra resiliunt et in se recurrunt. Horum duplicatio proxima quæque a terris calefacit. Quæ ideo plus habent teporis, quia solem bis sentiunt.

Seneca Nat. Quæst. L. IV. Sect. 8.

‡ Meteorolog. De Grandine.

|| το μεν αυτη λαμπρον και κουφον και γλυκυ εκκρινεται και αφαν ιζεται, το δε βολωδεστατον και σταθμωδεστατον λειπεται.

Hipp. de Aere Aquis et locis. §. XX.

Δαι τι απο χιονος και κρυσταλλων υδατα φαυλα εστιν; οτι παντος υδατος πηγνυμενη το λεπτιστατον διαπνικται και κωφοτατον εξαλμιζει.

Arist. Meteor.

an opinion which Aristotle seems to have adopted, probably from this source.

Aulus Gellius * explains this passage of Aristotle, as if the air was pressed, as it were, from water, by its concretion; and Macrobius † expresses the same in terms more plain and distinct, and seems to say that it was necessary for water to part with its air, in order to its congelation.

VII. It is often imagined, that the fact, Of water rising to its level in pipes, was a modern discovery; but it appears to be by no means so: and that the Aquæducts built at such vast expence for the conveyance of water, were not constructed for want of knowing, that pipes would answer a similar purpose, but from the persuasion, that the water, in pipes of lead especially, was less wholesome, than water conveyed in an open channel. This appears very clear, from the following passage in Palladius ‖. “ Si quis mons interjectus occurrerit, aut per latera ejus aquam ducemus obliquam, aut ad aquæ caput speluncas librabimus, per quarum structuram perveniat. Sed si se vallis interferat, erectas pilas, vel arcus usque ad aquæ justa vestigia

* Quoniam cum aqua frigore aeris duratur, et coit, necesse est fieri evaporationem, et quandam quasi auram tenuissimam exprimi ex ea et emanare: id autem, inquit, in ea levissimum est quod evaporatur.

Aul. Gell. Noct. Attic. IX. 5.

† Omnis aqua, inquit, habet in se Aeris tenuissimi portionem, qua salutaris est: habetque terream faciem, qua est corpulenta post terram. Cum ergo Aeris frigore et gelu coacta calefcit, necesse est per evaporationem velut exprimi ex illa Auram tenuissimam, qua discedente conveniat in coagulum.

Macrobius. Saturn. L. VII. C. 12.

[Palladius. Mens. August.

vestigia construemus, aut plumbeis fistulis clausam dejici patiemur, et explicata valle confurgere. Ultima ratio est, plumbeis fistulis ducere, quæ aquas noxias reddunt." Vitruvius* expresses the same, though in terms rather more obscure; and Pliny† gives particular directions on the subject.

* Vitruv. L. VIII. C. 7.

† L. XXXI. C. 6.

An Enquiry concerning the Influence of the Scenery of a Country on the Manners of its Inhabitants. By William Falconer, M.D.F.R.S.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

IT is an ancient maxim in Philosophy, attributed to Aristotle, and generally acquiesced in, That all mental ideas were primarily suggested, by sensible objects, through the medium of the senses. Whether this opinion be universally true, is not here meant to be discussed: but, that external objects influence our actions and conduct, and even direct our speculative sentiments, is too evident to bear dispute.

Animated beings, and, far above the rest, the human species, are the most powerful in producing these effects. We are naturally led to adopt the passions, and, to a certain degree, to imitate the character of those, to whose company and conversation we are daily habituated; and this disposition is so potent, that even error and prejudice are often introduced, and almost voluntarily entertained, by those, whose character and understanding, in other instances, should seem to afford the most complete security against such examples of human frailty.

A less potent, but a somewhat similar influence is exerted by inanimate objects. Scenes of horror, even though composed of lifeless materials, impart gloomy and terrible ideas to the mind; and those of pleasure tend, on the contrary, to exhilarate

exhilarate and refresh it. Hence we may infer, that the aspect or face of a country might contribute, in some measure, towards the formation of the manners, and character of the people.

The immediate and direct effect of the sight of objects, of either of the kinds above-mentioned, would be, I apprehend, but weak; but we should consider, that they must, from their nature, be almost constantly operating; and by their repeated action may make amends for the slightness of the impressions, distinctly considered.

As it is the natural property of beautiful objects to communicate pleasurable ideas to the mind, and to elevate the spirits, we may from thence infer, that the view of a fertile, pleasant, and cultivated country, would inspire sentiments of delight and satisfaction into those accustomed to survey it. A cultivated garden was the scene of delight, selected by that celebrated patron of sensual pleasure Epicurus; and the exhilarating effects produced upon the mind by the * survey
of

* ----- and now is come

Into the blissful field, thro' groves of Myrrh,
And flowering odours, Cassia, Nard, and Balm,
A wilderness of sweets, for Nature here
Wantons as in her prime, and plays at will
Her virgin fancies, pouring forth more sweet,
Wild above rule, or art, enormous bliss.

Paradise Lost, Book V.

----- about me round I saw,

Hill, dale, and shady woods, and sunny plains,
And liquid lapse of murmuring streams: by these,
Creatures that liv'd, and mov'd, and walk'd, and flew:
Birds on the branches warbling: all things smil'd
With fragrance, and with joy my heart o'erflow'd.

Paradise Lost, Book VIII.

Straight

of a beautiful scenery of country, are noticed by several of the poets, and particularly by Milton.

Is it not hence probable, that such a view would tend to inspire permanent cheerfulness of temper, into those daily accustomed to behold it, both, as it presents great variety of subjects of attention and admiration, and as it fills the mind with representations of pleasing objects?

Cicero, in his Letters to Atticus*, speaks of the pleasures of a garden, as the best remedy for grief and concern of mind; and in one of his philosophical dialogues †, he recommends attention

Straight mine eye hath caught new pleasures,
While the landscape round it measures,
Russet lawns, and fallows grey,
Where the nibbling flocks do stray:
Mountains, on whose barren breast
The labouring clouds do often rest:
Meadows, trim with daisies pied:
Shallow brooks, and rivers wide:
Towers, and battlements it sees,
Bosom'd high in tufted trees.

Milton's Allegro.

Why sit we sad, when Phosphor shines so clear,
And lavish nature paints the purple year?

Pope's First Pastoral.

* Deinde etiam ad *καταβισιν* mæstitiamque medendam nihil mihi reperiri potest aerius.

Cic. Epist. ad Attic. L. XIII.

† Quid de pratorum viriditate, aut arborum ordinibus, aut vinearum olivetorumque specie, dicam? Brevi precidam. Agro bene culto nil potest esse, nec usu uberius, nec specie ornatius, ad quem fruendum non modo non retardat, verum etiam invitat atque allectat Senectus.

Cicero. de Senect. § LIII.

Vobis mehercule Martis viris cavenda et fugienda imprimis amœnitas est Asiæ, tantum hæ peregrinæ voluptates ad extinguendum vigorem animorum possunt.

Livii L. XXVII.

Loca

tion to the natural beauties of a fine and cultivated country, as the proper study of the calm and serene period of old age.

It is, however, probable, that the pleasures inspired by such a scenery as is above alluded to, which is rather of a luxurious tendency, may coincide with the effects of the climate, in which such prospects are mostly produced, in contributing to weaken and effeminate the mind and disposition. However whimsical this notion may appear, it has been adopted by writers, in the highest esteem for understanding and discernment. Perhaps for the same reason, a beautiful and ornamented country has been thought to be favourable to the softer passions. "Love," says Agatho in the banquet of Plato, "resides not in a body or soul, or any other place, where flowers never spring; or, if they do spring, where they are fallen, and the spot quite deflowered. But wherever a spot is to be found flowery and fragrant, he there seats himself, and settles his abode." The beauty of the country, must, no doubt, contribute to the improvement of the taste of the inhabitants, both in arts and science.

Taste,

Loca amœna voluptaria facile in otio feroces militum animos molliverant.

Sallust. Bell. Catilin.

Itaque ut frugum semina mutato sole degenerant, sic illa genuina feritas eorum Asiatica amœnitate mollita est.

Flor. L. II. C. II.

Effeminat animos amœnitas nimia, nec dubiè aliquid ad corrumpendum vigorem potest regio. Fortior miles ex confragoso venit.

Senecæ Epist. L. I. Ep. 51.

N. B. The word *amœnus* is applicable to what is pleasant or agreeable to the eye, in place or situation, and, of course, refers to the scenery or face of the country.

Taste, which is in other words, the faculty of discerning and relishing beauty, is acquired by the comparison of beautiful objects with one another, and, upon that account, is likely to be found in greater perfection, where those objects abound the most, and where, of course, such comparisons would be the most obvious and easy. Hence springs, in a good measure, I apprehend, the elegant and varied fancy of the eastern people, exemplified in some of their works of art, particularly the patterns of their manufactures. The diversified beauty of the vegetables, that cover the ground in those countries, could scarcely fail to suggest ideas, far superior to what could be imagined by those, who never had any opportunity of seeing such delicate productions.

The most admired passages in the eastern writings, especially the poetical, owe much of their power and effect, to the painting of the natural beauties of the country and climate. A late writer*, of no inconsiderable taste, as well as talent for observation, has remarked of the Spaniards, that the families used by them, are universally taken from the beautiful objects of nature continually before their eyes. "The fragrance of the rose, the odour of the orange, the perfume of the myrtle, the murmuring of the cave inviting to slumber, the height of the mountains, the steepness of the rocks, the splendour of the rising sun, the coolness of the evening breeze, and the brilliancy of the stars by night, afford them endless allegories." Even Homer himself, that great master of our passions, is not a little indebted

* Carter's Travels from Gibraltar to Malaga.

indebted to his familiar acquaintance with the scenery of a beautiful country, for the ravishing effects of many of his descriptions and comparisons*.

Milton appears to have been so sensible of this effect of Homer's picturesque representations, that he has ventured, perhaps improperly, to adorn a scene laid in Britain, with productions peculiar to Asiatic climes†.

A beautiful

* Glad earth perceives, and from her bosom pours
Unbidden herbs, and voluntary flowers :
Thick new-born violets a soft carpet spread,
And clust'ring lotos swell'd the rising bed ;
And sudden hyacinths the turf bestrow,
And flamy crocus made the mountain glow :
Celestial dew descending o'er the ground,
Perfume the mount, and breathe ambrosia round.

Pope's Homer's Iliad. B. XIV. L. 395.

Next this, the eye the art of Vulcan leads
Deep thro' fair forests and a length of meads,
And stalls, and folds, and scatter'd cots between,
And fleecy flocks, that whiten all the scene.

Homer's Iliad, Descr. of Achilles's Shield.

Elysium shall be thine, the blissful plains
Of utmost earth, where Radamanthus reigns :
Joys ever young unmix'd, with pain or fear,
Fill the wide circle of the eternal year :
Stern winter smiles on that auspicious clime ;
The fields are florid with unfading prime ;
From the bleak pole no winds inclement blow,
Mould round the hail, or shake the fleecy snow ;
But from the breezy deep, the blest inhale
The fragrant murmurs of the western gale.

Homer's Odyss. B. IV.

† May thy lofty head be crown'd
With many a tower and terras round,
And here and there thy banks upon
With groves of myrrh and cinnamon.

Milton's Comus.

A beautiful scenery of a country contributes, I apprehend, to influence the sentiments of the people in some points respecting Religion. Thus, it is more than probable, that many of the ideas in the Roman and Greek mythologies, concerning a future state of happiness, were derived from this source. Homer's description of the Elysian fields *, and of the dwelling of the Gods †, is evidently borrowed from what he had seen in a fine country: and Virgil ‡ and Tibullus § seem to have taken their descriptions of

* See last page, Note *.

† Without the grot, a various sylvan scene
 Appear'd around, and groves of living green,
 Poplars and alders ever quivering play'd,
 And nodding cypress form'd a fragrant shade,
 On whose high branches waving with the storm,
 The birds of broadest wing their mansion form;
 The chough, the sea-mew, the loquacious crow,
 And scream aloft, and skim the deep below:
 Depending vines the shelving cavern screen,
 With purple clusters blushing thro' the green;
 Four limpid fountains from the clefts distil,
 And every fountain pours a different rill,
 In mazy windings wandering down the hill,
 Where blooming meads with vivid greens were crown'd,
 And glowing violets threw odours round;
 A scene, where, if a God shou'd cast his sight,
 A God might gaze and wander with delight.

‡ Devenere locos lætos, et amœna vireta,
 Fortunatorum nemorum, sedesque beatas:
 Largior hic campos Æther, et lumine vestit
 Purpureo, Solemque suum sua sidera norunt.

Virg. *Æneid.* Lib. VI.

§ Sed me, quod facilis tenero sum semper amori,
 Ipsa Venus campos ducet in Elysios.
 Hic chæræ cantusque vigent, passimque vagantes
 Dulce sonant tenui gutture carmen aves
 Fert casiam non culta seges, totosque per agros
 Floret odoratis terra benigna rosis.

Tibull. *Eleg.* Lib. I. El. 4.

Propertius

of the situation of the happy in a future life, from those natural beauties, with which they were familiar.

The same circumstances appear to have influenced the general opinions, concerning a place of future punishment. As the residence of the blest was supposed to be in a country exquisitely adorned with natural beauties, so that of the miserable was placed in a region *, dark and uncultivated, foul and horrible, in which circumstances, the misery of those condemned to inhabit it was thought, in a good measure, to consist.

Propertius speaks of Elysian roses.

Mulcet ubi Elysias aura beata rosas.

Prop. Lib. IV. El. 7. L. 60.

Milton uses nearly the same expression :

On a bed

Of heapt Elysian flowers.

Milton's Allegro, L. 146, 147.

Rolls o'er Elysian flowers her amber stream.

Par. Lost. III. 359.]

* Low in the dark Tartarean gulf shall groan.

Iliad. VIII. L. 16.

No sun e'er gilds the gloomy horrors there,

No cheerful gales refresh the lazy air.

Iliad. VIII. 601 et.

At scelerata sedes jacet in nocte profundâ

Abdita, quam circum flumina nigra sonant.

Tibull. I. El. 4.

----- tum Tartarus ipse

Bis patet in præceps tantum, tenditque sub umbras,

Quantus ad æthereum cœli suspectus Olympum.

Virg. Æn. Lib. VI.

---- diverso itinere malos a bonis loca tetra, inculta,
fæda atque formidolosa habere.

Sallust. Bell. Catilinar.

Esse inferos Stoicus Zenon docuit et sedes prorsum ab
impiis esse discretas et illos quidem quietas et delectabiles
incolere regiones, hos vero luere poenas in tenebrosis locis,
atque in cœni voraginibus horrendis.

Lactantii Lib. VIII. C. 7.

consist. Such are the effects we suppose producible by the beautiful face of a country.

Let us now see what would be the effects of one of a different appearance.

facility
Hippocrates observes *, that the inhabitants of rough, mountainous, and uncultivated countries, are rude and ferocious in their disposition and manners. The people of Cynetha in Arcadia, who lived in a situation particularly † gloomy and disagreeable, were so remarkable for their unfociable qualities, that they were expelled from the Grecian cities. The Cimmerians, who inhabited a country dark and melancholy, subsisted upon robbery and plunder: and the country of the Cyclops, according to Homer's description, was somewhat of a similar appearance. The same disposition of the people inhabiting the same region, is mentioned by Fazellus, a writer concerning Sicily, about two hundred years ago, and confirmed by the later testimony of Mr. Brydone. The Indians also discovered a few years since by Mr. Byron, in the Southern Hemisphere, were brutal and savage to an enormous excess.

and
May we not here suppose, with an elegant writer, that a stormy sea, together with a frozen, barren and inhospitable shore, might work upon the imaginations of these Indians, so as, by banishing all pleasing and benign ideas, to fill them with habitual gloom, and with a propensity ‡ to cruelty? And might not the tremendous scenes of Etna have had a like effect upon the Cyclops,

* De Aerib. aquis et locis. Cap. LV.

† Athenæi Lib. XIV. Polybii Lib. IV. C. 3.

‡ Harris's Philolog. Enquiries, p. 518.

Cyclops, who lived among smoke, thunderings, eruptions of fire, and earthquakes * ?

If, then, these limited regions so influenced their natives, may not a similar effect be presumed from the vast regions of the north ; may not its cold, barren, and uncomfortable climate, have made its numerous tribes equally rude and savage ? Ovid, the Roman poet, who, unfortunately for himself, had but too many opportunities for observations of this kind, seems to have been of this opinion, from his so frequently connecting his account of the country with the manners of the inhabitants. Is it not probable, that the dreary aspect of the country, might be one cause of the devastations committed by these people, in their invasions of the Roman empire † ? A desolate and uncultivated scene, which

* *Frigida me cohibent Euxini littora Ponti :
Dictus ab antiquis Axenus ille fuit.
Nam neque jactantur moderatis æquora ventis,
Nec placidos portus hospita navis adit.
Sunt circa gentes, quæ prædam sanguine quærant,
Nec minus infidâ terra timetur aqua.
Illi, quos audis, hominum gaudere cruore,
Pæne sub ejusdem sideris axe jacent.*

Ovid. Trist. L. IV. El. 4.

*Sive locum specto, locus est inamabilis, et quo
Esse nihil toto tristius orbe potest.
Sivi homines ; vix sunt homines, hoc nomine digni :
Quamque lupi sævæ plus feritatis habent.*

Ovid. Trist. L. V. Eleg. 7.

† Ovid mentions in his time, that the Getæ destroyed all the buildings, and laid the country waste, wherever they went.

*Hostis equo pollens, longéque volante sagittâ
Vicinam late depopulatur humum.
Quæ nequeunt secum ferre aut abducere, perdunt,
Et cremat insontes hostica flamma casas.*

Ovid. Trist. L. III. Eleg. 10.

Quicquid

which probably originally inspired the ferocious disposition of these people, was more congenial to their ideas and inclinations, than elegant buildings, and cultivated grounds, which, whilst they betrayed the unwarlike spirit of their possessors, evidenced their superiority in understanding and industry.

Miners, for the same reasons, are generally observed to be a hardy, ferocious, and cruel set of men. The scenes of horror, misery, and gloom, with which they are conversant, obliterate the finer sensations, and steel the heart against the sentiments of tenderness and compassion. The emotions of the mind, in these instances, correspond with the wildness and ferocity of the surrounding chaos of objects, and require, in order to humanize them, a certain degree of adjustment, and even embellishment, of external appearances. We might reasonably conclude from hence, that a people so situated, would have their intellectual faculties considerably contracted or depressed. The paucity of objects, and those of a disgusting or terrible nature, would afford few motives for inquiry, and, of course, a narrow field for mental exertion.

The

Quicquid invenire poterat momento temporis parvi, vastabant, (Saraceni) milvorum rapacium similes.

Amm. Marcell. L. XIX. C. 4.

The Franks destroyed forty cities upon the Rhine.

Zosim. L. III. C. 1.

Alaric destroyed all the cities in Macedonia, Thrace and Greece, except Athens and Thebes. Attila preferred his house of wood on the Tibiscus, to all the splendid palaces he might have enjoyed.

Zosim. L. V. C. 5.

The ancient Germans*, to whom letters were unknown, and who seem to have possessed very little thirst after knowledge, dwelt in a region, dark with forests, and foul with marshes; and the desolate and uncultivated face of the country contributes, I doubt not, to encourage the ignorance of the American Indians. We might, with still greater probability, imagine that such a people would be particularly defective in all matters that regard taste and sentiment. This, however, is not altogether the case. Their ideas are indeed melancholy, and their views of nature dark and gloomy; but, nevertheless, often partake of a dreary magnificence, and fullen grandeur, that produce a deep and lasting impression upon the mind. These sentiments are congenial with the appearance of the country. The stupendous scenery of rocks, clouds, precipices, torrents and deserts, continually exhibited to their senses, cannot fail to suggest a train of thoughts and expressions corresponding therewith; and the accidents to which a life of hunting, in a country that gives occasions to so many dangers, is exposed, contribute still farther to increase the gloom, and throw a darker shade upon the imagination. Hence, sorrow and terror are the passions they are most naturally led to excite. Their music, as well as their poetry, is plaintive, and, I believe, mostly applied to the recital of melancholy tales, or unfortunate events. Even their superstitions are of a melancholy cast.

The

* Terra etsi aliquanto specie differt, est in universum, aut sylvis horrida aut paludibus sæda. Taciti Germania.

Multis montibus aspera, et mana ex parte silvis et paludibus invia. Pompon. Mela.

The noted faculty of prying into futurity, by means of a previous sight of events that were to take place, so noted in the Alpine scenes, both of Scotland and Switzerland, is held to be of a sad and uncomfortable nature, unlike the Seers of old, who were thought to be particularly favoured by such communications. This faculty has been regarded by those, who believed they possessed it, as a misfortune, on account of the many dreadful images it obtruded upon the fancy. This kind of prescience seems to have been principally, though not altogether, concerned in scenes of horror. Deaths, shipwrecks, storms, and famine, were much more frequently predicted, than the cheerful and exhilarating circumstances of life; which forms no inconsiderable presumption, that the ideas that occupied their minds, were principally of a gloomy and melancholy aspect.

The notions of people, concerning a future state, appear to be much influenced by the scenery of such a country. Some nations have been so sensible of the disadvantages and inconveniences attending it, that they have formed their system of future happiness, apart from any connection with the appearance of the country. Thus the Scythians, and the northern nations of Europe, held their Elysium to consist, in the joys of wine, and of company collected in a spacious building. The American Indians, for similar reasons, have selected such circumstances only, as served most to temper the gloomy and severe appearance of nature. Thus, they expect to be translated to a country, where the sky is always clear and unclouded, and a perpetual spring prevails. On the contrary, when they mean to describe

describe a place of future torment, they figure it as possessing all the dreary appendages belonging to their own country, but in a greater degree. Thus the *Ifurin*, or hell of the northern nations, was supposed to be a place dark, gloomy, cold, and destitute of every convenience of life; the former of which circumstances, as well as the latter, were imagined to constitute the misery inflicted by it.

Thoughts on the Style and Taste of Gardening among the Ancients. By William Falconer, M.D. F.R.S. &c.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

THE most early accounts we have of a Garden, is contained in the Sacred Writings, in the description of the habitation of our first parents. The form, disposition, and arrangement are not particularly described. It is only said to have contained every tree, "that is pleasant to the eye, and good for food *," and that it was watered by a river, which, no doubt, added to the beauty of the prospect, (which, in the expression before cited, seems to have been particularly consulted) as well as to the fertility of the soil. Wood and water, therefore, both for shade † and ornament, the principal points aimed at in modern gardens, may be presumed to have been here in the highest perfection. Farther than this we are not informed.

The next hints concerning Gardens, that I can discover in the Sacred Writings, are to be found

* Genesis, Chap. ii. ver. 9.

† And Adam and his wife hid themselves from the presence of the Lord, among the trees of the garden.

Genesis, Chap. iii. ver. 8.

found in the Song of Solomon, part of the scene of which is, undoubtedly, laid in a garden *. Flowers and fruits are particularly spoken of, as the ornaments and the produce of it; and besides these aromatic vegetables † formed a considerable part of the gratifications it afforded. Fountains and streams of water appear, also, to have had a share in the composition, and probably for ornament as well as use. Statues, or paintings are not mentioned in these descriptions, and probably, had no place among their embellishments.

It is proper to remark, that all the beauties of these gardens were confined within themselves. No beauty of prospect, or variety of ground is mentioned, and for obvious reasons. The privacy of a place, destined, in a great measure,

H

for

* I am the rose of Sharon, and the lily of the vallies.

Chap. ii. ver. 1.

A garden inclosed, is my sister, my spouse; a spring shut up, a fountain sealed. Thy plants are an orchard of pomegranates, with pleasant fruits, camphire with spikenard, spikenard and saffron, calamus and cinnamon, with all trees of frankincense, myrrh, and aloes, with all the chief spices. A fountain of gardens, a well of living waters, and streams from Lebanon. Awake, O north wind, and retire thou south, blow upon my garden, that the spices thereof may flow out. Let my beloved come into his garden, and eat his pleasant fruits.

Chap. iv. ver. 12. et.

† Aromatic plants are very often mentioned as a high gratification, and perfumes to this day are much admired in the east. "His cheeks are a bed of spices, with sweet flowers, his lips like lilies, dropping sweet smelling myrrh." Ch. v. ver. 13. "I will get me to the mountain of myrrh, and to the hill of frankincense."

Ch. iv. ver. 6.

for the confinement of women, prevented the former, and the limited bounds of the extent of the garden, would not admit of the latter.

It appears probable, that at that time they were used to have houses in their gardens, wherein, particularly in hot weather, they were accustomed to sleep at nights, which probably, was a great part of the gratification resulting from them. A dwelling is mentioned in the Song of Solomon, that seems to have stood in the garden, and was probably of this kind *; and it is likely that "the pleasant houses," mentioned by Ezekiel †, were of a similar nature.

I am inclined to think, that some ever-green trees, particularly some of the terebinthinate kind, were favourite ornaments of the Jewish gardens.

The cedar is often mentioned as a tree highly ornamental; and both that and the fir are spoken of in the book of the prophet Ezekiel †, as being frequent in magnificent gardens. Dr. Russel || likewise mentions, that at present at Aleppo a cypress tree is generally planted in the little gardens, in the inner courts of the houses, as well as in their more extensive ones.

The

* Chap. v. ver. 1, &c.

† Chap. xxvi. ver. 12.

Dr. Russell says, that it is customary for the principal persons at Aleppo to live at their gardens during the month of April, and part of May. They live under tents, and perhaps tents might be used in the instance cited.

Russell's Aleppo, p. 135.

‡ The cedars in the garden of God could not hide him, the fir trees were not like his boughs. Ezekiel, xxxi.

|| Russell's Aleppo, p. 5.

The next description of a garden, in order of time, appears to be that of Alcinous by Homer. This has been generally esteemed to be a fruit garden for use merely, without any view to ornament. But I do not take this to be altogether its character, though it seems to be so in a good measure. Something of a parterre, * planted with flowers, appears to have composed a part of it; and probably Homer would not have bestowed so particular and laboured a description upon the trees, if they had not contributed to the beauty of its appearance, as well as to the furnishing of the table with fruits.

The hanging gardens of Babylon come next, I believe, in order of time. These seem, in many respects, to have been laid out with good taste. Their elevation not only produced a variety and extent of view, but was also useful in moderating the heat, which I suppose might be the principal reason why such a construction

H 2 was

* Εἶθα δὲ κοσμηταὶ πρασαὶ παρὰ νεῖατον ὄρχον
Παντοῖα πεφυασὶν ἐπητανοῦ γανώσας.

Homeri Iliad. L. VII.

Athenæus, and the Scholiast on Homer, understand pot herbs only to be meant in this place; but the words κοσμηταὶ and γανώσας seems too ornamental to be so understood, and to be rather applicable to flowers. At any rate, they were planted in parterre-like division, as the word πρασαὶ signifies.

“Ad olerum consitionem quadratæ dispositiones quæ πρασαὶ dicuntur in laterculi formam.” Columella.

ω; τὰ πλινθία—Scholiast. on Homer.

Was this division of the garden of Alcinous, similar to the garden of herbs mentioned in the Book of Kings, into which Ahab wished to convert Naboth's vineyard?

was fixed upon; though another is assigned; referring only to the similarity of appearance. Such a situation would likewise suit a greater variety of trees and plants than a plain surface, and would contain a larger, as well as a more diversified extent.

The suiting of the situation to the nature of the trees, seems, from the account given by Josephus, to have been one view *, in the erecting the building in such a manner. And the success seems to have been answerable, as the trees are said to have flourished extremely well †, and to have grown as tall as in their native situations. On the whole then, however different these may appear from modern gardens, I must confess I think they were formed with judgment and taste, and well adapted to the situation and circumstances.

It appears, from the nature of the structure, that the trees here should be planted regularly in rows and ranks; but this was also in the Persian taste. The garden of the younger Cyrus at Sardis, which was all planted with his own hands,

* --- εν δε τοις βασιλειαῖς τούτοις ἀναλημματα λίθινα ὑψηλά ἀνωκοδομησας καὶ τὴν οὖν ἀποδοὺς ὁμοιοτάτην τοῖς ὅροις καταφυτεύσας δένδρεσι παντοπαδοῖς ἐξείργασατο καὶ κατασκευάσας τοὺς καλομένους κρεμαστοὺς παραδείσους.

Joseph. contra Apionem, L. I. § 19. Extr.

† Το δὲ ἔδαφος ἐξωμαλίσμενον πλερες ἦν ταυτοδαπῶν δένδρων τῶν δυναμένων κατὰ τὸ μέγεθος καὶ τὴν ἀλλήν χάριν τοῖς θεομένοις ψυχαγωγῆσαι.

Diod. L. II.

Stipites earum octo cubitorum spatium crassitudine æquent: inquinquaginta pedum altitudinem emineant, et frugiferæ æque sunt, ac si terra sua alerentur.

Quint. Curt. L. V.

hands, was laid out in straight lines *, and at right angles, which was no doubt esteemed the established custom of placing the trees in gardens.

It does not, as far as I can find, appear clearly, that flowers made a part of the ornaments of these gardens; but we may conjecture they did from the odours mentioned to be exhaled from the plants growing there †, which were understood to constitute no small part of the pleasure they afforded.

It seems probable, from several circumstances, that the eastern gardens were adjoining to the house or palace to which they belonged. Thus, King Ahasuerus goes immediately from the banquet of wine to walk in the garden of the palace ‡. The garden of Cyrus, at Sardis, mentioned by Xenophon || was probably contiguous to the palace, as was that of Attalus, mentioned by Justin §. The hanging gardens of Semiramis, at Babylon, were not so much adjacent to the palace, as a part of the palace itself, as several of the royal apartments were beneath them ¶.

H 3

Parks

* Επει δε θαυμαζει αυτοι ο Αυσαιδρος ως καλα μεν τα δινδρα ειη, δι' ισου δε τα πεφυτευμενα, ορθοι δε οι σιχοι των δινδρων, ευγυνια δε παντα καλως ειη. Xenoph. *Æconom.*

† Οσμαι δε πολλαι και ηδισαι συνπαρρημαρτοιεν αυτοις περιπατουσι. Ibidem Xenoph.

Και ταυτα μετ' ηδιστων οσμων και θεαματων παρεχει. Ibidem Xenoph.

‡ Esther, Chap. vii. ver. 7. || *Æconom.*

§ Justin. L. XXXVI. C. 4.

¶ Αι δε ευριγγεις τα φωτα δεχομεναι ταις δι αλληλων υποχοαις πολλας και παντοδαπας ειχον διαιτας βασιλικας. Diodor. Lib. II.

Parks also, which may be looked upon somewhat in the light of gardens, were common in the east. The younger Cyrus, we are told by Xenophon*, had a park at Celænæ in Phrygia; stocked with wild beasts for the purposes of hunting. Plutarch † speaks of another, belonging to Tissaphernes; and inclosures of a similar kind are mentioned by other writers ‡.

What the taste for gardening was among the Greeks, I do not understand. The Academus, we know, was a woody shady place §; and the trees appear to have been of the olive species ||. It was situated beyond the limits ¶ of the walls, and adjacent to the tombs of the heroes. I do not, however, find any particular account in
ancient

* Εἰταυθα Κυρω βασιλεια ην και παραδεισος μεγας
αγριων θηριων πληρης ἃ σκαιος εθηκεν απο ιππου οποτε
γυμνασαι εαυτον βουλοιτο τε και τους ιππους. Anabaf.
L. I.

† Vita Alcibiadis.

‡ Παραγινεται δε και εις περιβολον, ον βασιλεως θησαν
εκαλουν' ην δε τι τειχιον χωριον απειληφοσ ενδον πολυ,
δι.δρεσι πεφεντευ μενοι παιτοδαποικ' εν τουτω θηριων παντοιων
εναποκλεισμενα γεινη, τροφης τε ουκ ηπερευδιτο, δια το και
ταυτην επισαγασθαι, και παρειχον τω βασιλει του θησαν,
ηλικα αν βουληδην, ραστονην. Zozimi L. III. C. 23.

Venationes Regis esse in Babylone, et omnis generis
bestias murorum ejus tantum ambitu coerceri.

Sanct. Hieronym. in C. XIII. Esaiæ.

§ Atque inter Sylvas Academi quærere verum.

Horat. Epist. L. II. 1. 46.

|| Αλλ' εις Ακαδημιαν κατιω, υπο ταις μοριαις αποθρεξεισ.
Aristoph. Νεφελαι. Act. III. Sc. 3.

¶ - - - γυμνασιον προαστειν αλωωδης.

Dioz. Laert. Vit. Platon.

Non longe a Muris Academia est. Pausan. Attica.

ancient history, of the manner in which this grove was disposed or laid out. It appears however, to have been an elegant ornamented place*. At the entrance was an altar dedicated to Love, which was said to be the first erected to that Deity. Within the Academus, were the altars of Prometheus, of the Muses, of Mercury, Minerva, and Hercules; and at a small distance was the tomb of Plato. So that in all probability, it was highly adapted by art, as well as nature, to philosophic reflection and contemplation.

We are told by Plutarch, that before the time of Cimon, the Academus was a rude and uncultivated spot; but that it was planted by that General, and had water conveyed to it†; whether this water was brought merely for use to water the trees, or for ornament, does not appear. It was divided into gymnasia, or places of exercise, and philosophic walks, shaded with trees. These are said to have flourished very well, until destroyed by Sylla‡, (when he besieged Athens) as well as those in the Lyceum§.

H 4

Near

* Pausanias Ibidem.

† Την Ακαδημian εξ ανδρου και αυχημας καταρρετον αποδειξας αλος ποκημεναι υπ' αυτου δρομοις καθαροι και ευσκοις περιπατοις. Plutarch Vir. Cimon.

‡ Επεχειρησε τοις περοις αλσισι, και τηντε ακαδημian εκειρε διδροφορατην πρασιων ουσαν, και το λυκειον. Vir. Sylla.

§ The trees in the Lyceum were probably Plane trees. Varro quotes Theophrastus, for the relation of the large size and extent of the roots of one in that place.

De re rustica, Cap. XXXVII.

Near the Academy, were the gardens of the philosophers *, of Plato †, and of Epicurus ‡, which, however, were probably but small.

The scene of Plato's Dialogue concerning Beauty, is elegantly described, as being on the banks of the river Ilissus, and under the shade of the Platane; but no artificial arrangement of objects is mentioned, nor any thing which will lead us to imagine the prospect to be any other than merely natural. The beauty of this description was so much admired by succeeding writers of philosophic dialogues §, that it was frequently imitated, and at last to such a degree, that it appeared ridiculous and disgusting, as we may suppose from the caution given by Plutarch ¶ against such attempts, in the proems to discourses.

The Romans seem to have early imbibed somewhat of a taste for gardens.

Tarquin the Proud, is said to have communicated his intentions to his son, concerning his conduct

* Ομοίως δὲ καὶ ἡ ἀκαδημία καὶ οἱ κήποι τῶν φιλοσόφων.

Strabon. L. IX.

† - - - cujus (Platonis) enim hortuli propinqui non memoriam solum mihi afferunt, sed ipsum videntur in conspectu meo ponere. Cicero de finib. L. V.

‡ In Epicuri hortis, quos modo præteribamus. Ibidem.

§ Cicero was a great admirer of this passage in Plato.

¶ Quæ (Platanus) videtur non tam ipsa aquula quam Platonis oratione crevisse. De oratore, Lib. I. § 15.

¶ Ἀφ' ἑλ' τῆς λόγου τοῦ νῦν ἔχον ἐμποίων τε λειμῶνας καὶ σκίας καὶ ἄμα καὶ λακκῶν διαδρομας καὶ ὅσα ἄλλα τοιούτων τοπῶν ἐπιλαβόμενοι γλίσχονται τῇ Πλάτωνος Ἰλισσῶν καὶ τοῦ κήπου ἐκεῖνον καὶ τὴν ἡρέμα προσνατὴ πῖαν πεφυκίαν πρυμνοτερον ἢ καλλιον ἐπιγραφισθαι.

Plutarch Amator. ad Initium.

conduct to the people of Gabii *, by striking off the heads of the flowers in his garden.

I see but little mention made of a garden, otherwise than as a matter of utility, to produce articles of food for many years after; though I think it probable they might be as matters of pleasure also. The writers, however, on husbandry, Cato, Varro, Columella, and Palladius, make not the least mention of a garden as an object of pleasure, but solely with respect to its productions of herbs and fruits; and I do not imagine it was among the earliest articles of Roman luxury. The Lucullan gardens seem to be the first I can find mentioned, of remarkable magnificence; though probably from the height of extravagance to which these were arrived, they were not the first. Plutarch speaks of them as incredibly expensive, and equal to the magnificence of kings †. They contained artificial elevations of ground to a surprising height, of buildings projected into the sea, and vast pieces of water made upon land. In short, his extravagance and expence was so great, that he acquired from thence the appellation of the Roman Xerxes.

It is not improbable, from the above account, and from the consideration of Lueullus having

H 5

spent

* Livii Lib. I. Cap. 54. Luc. Flor. C. 8. Dionys. Italic.

It appears from all these accounts that the garden was adjacent or contiguous to the palace.

† Plutarch. Life of Lucullus.

Sallust is thought to have alluded to the Villa of Lucullus when, in describing the Roman luxury, he says, "Nam quid ea memorum quæ, nisi his qui videre, nemini credibilia sunt; a privatis, compluribus subversos montes, maria constrata esse." Bell. Catilin.

spent much time in Asia, in a situation wherein he had an opportunity of observing the most splendid constructions of this kind, that these gardens might be laid out in the Asiatic style.

The vast masses of building said to have been erected, might have borne some resemblance in the arrangement and style, to the Babylonian gardens; and the epithet of the Roman Xerxes might be applicable to the taste, as well as the size and expence, of his works.

The Tusculan Villa of Cicero though often mentioned, is not, as far as I can discover, any where described in his works so as to give an adequate idea of the style in which his gardens or grounds were disposed.

There is but little in Virgil that I can find relative to this subject. Pines *, it seems probable, were a favourite ornament in gardens, and flowers †, roses especially, were much esteemed. Some plants also of the culinary kind, as the endive, the parsley, and the cucumber were sometimes either planted as ornaments, or else intermixed with plants of that kind, contrary to modern practice.

I apprehend

- * Fraxinus in sylvis pulcherrima, pinus in hortis,
Populus in fluviis, abies in montibus altis :
Sæpius at si me, Lycida formosæ, revisas,
Fraxinus in sylvis cedet tibi, pinus in hortis.

Virgil. Eclog. VII. l. 65. &c.

- † Forſitan et, pingues hortos quæ cura colendi
Ornaret, canerem, biferique roſaria Pæſti :
Quoque modo potis gauderent intyba rivis,
Et virides apio ripæ, tortuſque per herbam
Creſceret in Ventrem cucumis ; nec fera comantem
Narciſſum, aut flexi tacuiſſem vimen acanthi,
Pallentéſque hederas, & amantes litora myrtos.

Georgic. L. IV. L. 118.

I apprehend that flowers and shrubs were planted full as much among the Romans for the sake of their odour, as the beauty of their appearance *. Perfumes were always highly valued in warm climates. Virgil places Anchises † in Elysium, in a grove of bays, and is careful to remark, that they were of the sweet-scented kind ‡. The Pæstan roses were chiefly valued for their excellent perfume; and the same quality appears to be the cause why they were placed by Tibullus § as ornaments to the Elysian fields.

I must not pass over one piece of Roman luxury relative to gardens, which is equally prevalent at present, viz. the endeavour to produce flowers at seasons of the year not suited to their time of blowing.

Roses were then, as at present, the principal flowers upon which these experiments were tried, as appears from Martial and others ¶.

The

* See Athenæus passim, & Anacreon.

Jactat odoratos Vota per Armenios.

Tibulli L. I. Eleg. 5.

† Inter odoratum lauri nemus. Virg. Æneid. VI.

‡ Calthaque Pæstanas vincet odore rosas.

Ovid. Ep. de Pont. L. II. El. 4.

§ Floret odoratis terra benigna rosas.

Tibulli L. I. Eleg. 3.

Athæneus speaks of the rose, entirely with a view to its odour. L. XV. p. 681, 682, edit. Casaubon.

¶ Ut nova dona tibi, Cæsar, Nilotica tellus

Miserat, hibernas ambitiosa rosas.

Navita derisit Pharios Mephiticus hortos,

Urbis ut intravit limina prima tuæ.

Tantus veris honos, et odoræ gratia Floræ,

Tantaque Pæstani gloria ruris erat.

Si quacumque vagus gressum oculosque ferebat,

Textilibus

The next accounts of ancient gardens I can meet with, are those of Pliny, which, we may conjecture, were not only laid out according to his own taste, but that also of the age in which he lived.

His account of his *Laurentine Villa* *, relates but little to the external arrangement of gardens and ground, but is confined chiefly to the house.

It appears, however, that the *Gestatio* †, or place for horse exercise, was bordered with box, and where that was defective, with rosemary intertwined with vines. It appears also that the *Gestatio* surrounded the garden ‡. The *Xystus* § likewise, or place for foot exercise, was planted with violets, which seem to have been placed there on account of their odour. His description of his *Tuscan Villa* ¶ is more particular. This seems to have possessed great natural beauties, to which its possessor attended with great

Textilibus fertis omne rubebat iter.

At tu, Romanæ jussus jam cedere brumæ,

Mitte tuas messes, accipe, Nile, Rosas

Martial. Epigr. L. VI. Ep. 80.

Dat festinatas Cæsar tibi bruma coronas:

Quondam veris erant, nunc tua facta rosa est.

Epigr. L. XIV. Epig. 127.

Æstivæ nives, hibernæ rosæ. Lamprid. Vit. Elagab.

* The *Laurentine Villa*, we are told by Pliny himself, was calculated more for use than ornament. “*Villa usibus capax, non sumptuosa tutela.*”

Plin. Epist. L. II. Ep. 17.

† *Gestatio* buxo aut rore marino ube deficit, buxus ambitur. Adjacet gestatione interiore circuitu vinea tenera et umbrosa. *Ibidem Plinii.*

‡ *Hortum et gestationem videt quâ hortus includitur.*

Ibidem Plinii.

§ *Ante Cryptoporticum Xystus violis adoratus Ibidem.*

¶ See Pliny's Letter to Apollinaris.

Lib. V. Epistol. 6.

great judgment. Its situation appears to have been healthy and remarkably cool; inasmuch, that the olive and myrtle would not thrive, nor perhaps even grow there. This circumstance, owing, probably, to its proximity to the Appenine mountains, fitted it for a summer residence. It was placed in the midst of a vast natural amphitheatre, surrounded with hills crowned with lofty and venerable woods: small rising grounds of great fertility here and there occurred, which were planted on their sides with vines, and surrounded with shrubs and under-wood. The lower grounds were full of flowers and plants, always green and flourishing, and probably on account of the difference of temperature of the situation varying from those of the surrounding country. What added to the beauty of this scene was, that it was plentifully watered by many rivulets from the adjacent hills, which the coolness of the situation prevented being dried up by the summer heats. No marshy places were, however to be found, but the whole of the superabundant moisture was carried off into the Tyber, which ran through the middle of the prospect, and completed the beauty of the scene, not only as a piece of water, but also as a navigable river. The Villa of Pliny was situated upon one of those rising grounds before mentioned, and enjoyed a distant and varied prospect; though the ascent to the place on which it stood was so gradual, as scarcely to be sensible to those who went up to it.

After this account of the natural beauties of this elegant situation, which its noble possessor seems to have been thoroughly sensible of, and

to have entered into with the highest taste and delight, we are surpris'd and sorry to see the artificial part of the prospect form so disgraceful a contrast. The Xystus, or court before the portico, for walking and exercise, was parted into numerous divisions of diverse shape, all edged with box. The slope lawn, or descent from thence, was bordered on the sides with figures of beasts cut in box trees. The interior space seems to have been planted (probably here and there only) with acanthus. These were surrounded by a walk, shaded by ever-greens, shorn into different shapes : and the whole again incircled by a riding path, which was secured on the outside by a wall, or rather mound of earth covered with box trees, rising one row above another, in form of steps. Opposite to the middle of the portico, there was a small court surrounded by a summer-house, and shaded by four plane trees, in the midst of which a fountain arose into a marble basin, and running over the edges, sprinkled the trees and the grass underneath. In the front of the buildings lay a plantation of trees, in form of an Hippodrome, open in the middle, in order that its whole extent might be perceived at one view, and incircled with plane trees covered with ivy, in such a manner, as that they appeared, in their lower parts, to be composed of that shrub, while their tops flourished in their native verdure and foliage.

The ivy spreading from one tree to another, connected them together into an uniform appearance. Between each of the plane trees, box were planted, and behind these, bay trees, which blended their shade with that of the planes. This plantation formed a straight boundary on each

each side of the Hippodrome, and at the end, bent into a semicircular form, bordered with cypress trees which served to vary the prospect, and to cast a deeper and more gloomy shade; whilst the internal circular walks, several of which there were planted with roses, formed a contrast to the shade of the others. These winding paths terminated in a straight walk, which again divided into several others, separated from one another by box hedges. In one place there was a little meadow, in another the box was cut into a thousand different forms; sometimes into letters, expressing the name of the master, sometimes that of the artificer; whilst here and there little obelisks arose, intermixed alternately with fruit trees, and in the midst of this regularity of arrangement, so suited to the taste of the inhabitants of a great city, there arose an unexpected scene, resembling the natural beauties of the country, in the center of which lay a spot, surrounded with dwarf plane trees.

Beyond these was placed a plantation of acanthus, and, as you proceeded, the trees were cut out into various figures and shapes. At the termination was an alcove seat of white marble, supported by four small Carystian marble pillars. Underneath the seat the water gushed out through several small pipes, as if pressed out by the weight of those who reposed themselves upon it. This water was again collected into a stone cistern beneath, and received from thence into a polished marble basin, so artfully contrived, as to be always full without overflowing, though the means by which this was brought about were not obvious to the view. We are also told that this basin served, sometimes, as
a table

a table at supper, the larger dishes being placed on the edge, whilst the smaller swam about in form of little ships and wild fowl. Corresponding to this was a fountain, incessantly filling and emptying; the water being thrown up to a great height, and falling back into the basin, from whence it ran off. Fronting the alcove stood a marble Summer-house, with folding doors, projecting and opening into a green inclosure, so that from the upper and lower windows you might distinguish a variety of different verdures. Seats of marble with fountains by their sides, were dispersed through the gardens, and throughout the whole Hippodrome streams of water were conveyed in pipes to different spots, to water and refresh the trees and verdure.

It is obvious that the above descriptions bear a striking resemblance to the taste in gardens that prevailed in this country, and indeed throughout Europe, towards the beginning of the present century. The walks bordered with box and rosemary, the terrace planted with violets at the Laurentine Villa, and the court divided into parterre divisions, edged with box; the figures of animals cut out in box trees, placed opposite each other upon the slope, with the surrounding walk inclosed with tonfile evergreens cut into shapes, point out the same resemblance in the gardens at the Tuscan Villa. The circular amphitheatre of box, cut into figures, and the walk covered with graduated shrubs, are all exactly in the same style. The fountains overflowing; the marble basins; the little jets d'eau about the seats, and under the alcove; the sudden disappearance of the water; the

the spouts in the grass; the regular disposition of the trees in the Hippodrome in lines straight, and regularly curved; together with the arrangement of the different kinds behind each other, make one think Pliny was rather describing a Villa of King William or Louis XIV. than one of a Roman nobleman, and senator, seventeen hundred years ago.

Some circumstances, in the above description, appear in many respects absurd and exceptionable. But let us not be too hasty in our censures; but consider whether the nature of the climate and country may not vindicate them, in several respects, from the imputations which might have been justly ascribed to them, under different circumstances. The walks, bordered with box, a tree of close growth, and said to flourish extremely in that situation, formed a convenient shelter from the torrid rays of an Italian sun. The shearing of the trees contributed also to thicken their shade, and to render them more commodious for this purpose, though I confess it was not necessary, for this end, that they should be clipped into awkward imitations of animals, &c. which it is surprising a man of the taste of Pliny could approve. The fence to the garden was, in Pliny's Villa, concealed by trees, an improvement on the modern taste referred to; a long range of bare brick walling having been often esteemed an object of beauty or magnificence.

Fountains likewise, and jets d'eau, however useless, and therefore absurd and unnatural in Great Britain and Holland, may still be in perfectly good taste in Italy. The dispersion of moisture cools the air, by the evaporation it produces;

duces; and the very murmur of the falling of water gives the idea of coolness, by association of sensations. They seem here to have been disposed with judgment, some of them being situated near the alcove, and resting places, as a refreshment to those fatigued with heat and exercise; and others dispersed through the grass, not to cause a foolish surprise, and to endanger the health of those passing that way, by wetting their clothes, but to water the trees, cool the ground, and refresh the verdure; circumstances indispensable to the beauty of the scenery and prospect, in a hot climate.

The same apology may, I think, be made for the regularity of the walks in the Hippodrome, and the minute parts and divisions in which it was disposed.

It is probable, the extent of ground itself was not large. Distant walks would be fatiguing in an Italian summer, and would be too much trouble and expence to keep as closely shaded as would render them sufficiently agreeable. They were, therefore, in a manner, compelled to make as much as possible out of the space of ground, which they accomplished by dividing it into as many walks and paths as possible.

The parterre, likewise, parted into beds of various shapes, was necessary for flowers, which were highly valued in warm climates for their perfume, but do not thrive, unless kept distinct and free from the proximity of other trees, or plants.

It is remarkable here that the taste of the author for the beauties of nature, breaks out among his description of the most artificial ornaments. Immediately after describing the fence
of

of the garden covered with graduated box trees, he adds, that the adjoining meadow was as beautiful by nature, as the garden had been rendered by art; and, in another place, mentions the contrast of the beauties of rural nature, with those of art*, as one of the chief ornaments of his garden. The same apology that has been made for the style in which Pliny's gardens were laid out, is applicable to the eastern gardens in general, and holds still more strongly, as the heat becomes more constant and intense. We may farther observe, that this mode suits the disposition of the eastern people in many other respects. The regularity and formality of their manner of living, and manners, correspond with their taste for regular figures, and uniformity of appearance in the laying out of ground. It may not, perhaps, be too great a refinement to remark, that such a taste is conformable also to a despotic government which is jealous of all innovations, and, of course, affords no opportunity for exertions of genius in any capacity. It is worthy of observation, that the regular taste above referred to, prevailed in this country at a time when

* Juvenal appears to have possessed a good taste in gardening, and laying out grounds, from what he says of the artificial grottoes at Aricinum, and the attempt to ornament the water, by substituting marble in place of its natural boundary of herbage.

In Vallem Egeriæ descendimus, et speluncas
Diffimiles veris: quanto præstantius esset
Numen aquæ, viridi si margine clauderet undas
Herba, nec ingenuum violarent marmora tophum?

Juvenal. Satyr. III. L. 17.

our system of manners, dress, and behaviour was extremely ceremonious, formal and reserved, and approaching to those of the eastern countries. As this stiffness wore off, the taste of the people improved. Shakespeare was no longer censured for inattention to dramatic strictness; the turgid, but regular bombast of Blackmore fell into disrepute and ridicule, and a more easy and natural style was adopted, both in sentiment and writing.

The general method of laying out grounds in this country, seems at present to be very rational. Natural beauties, or resemblances thereof, are chiefly attempted; which are the more proper, as being more conformable to the climate and situation of the country, and disposition of the people, who are best pleased with great and sublime objects, which are to be found only in nature. The close walk, however delightful in Italy, or Persia, is here judiciously exchanged for the open grove, and the moisture of grass for gravel. The tonsure of trees is also laid aside; not only as impairing their beauty, but also as thickening their shade, more than would be necessary or agreeable, where a free intercourse of air is so requisite, to dispel damps and exhalations. Fountains, on the same account are laid aside, and we are content with the natural current of streams, which exhale less moisture, and produce less cold, than water spouted into the air by the fantastic, but less beautiful distribution of it by a jet d'eau. The gardens or pleasure grounds in our country, are likewise very properly of much larger extent, than those in hot climates. Pleasure, in the latter, is always combined with
somewhat

somewhat of indolence and inaction; in the former it is connected with exercise and activity. A large scope of ground, therefore, that afforded opportunity for the latter, would be more conformable to the genius of the people, as well as to the climate in which the luxurious indulgence, so delightful when the heat is intense, could very seldom be safely practised. On the whole, I am inclined to believe, that notwithstanding our want of the ornaments proper for hot climates, in our gardens and pleasure grounds, Great Britain is capable of affording more real and genuine beauty in views of this kind, than is, perhaps, any where else to be met with. The fine and regular verdure which always clothes both the earth and the trees; the variety of the herbage, and the size to which oaks and other forest trees congenial to the country will arrive, impart a beauty and magnificence to our prospects, and afford opportunities for the judicious interposition of art, far superior to what is to be met with where these advantages do not occur.

We are struck with classic descriptions, and affected by the circumstances which, by their connection, they recall to the memory; but setting these aside, I make no doubt, a grove of English oaks would be a more beautiful, as well as a more magnificent object, than "the olive grove of Academe," or that of plane trees in the Athenian Lyceum.

After all, it is possible to err in too closely following Nature, as it is in neglecting her. There are beauties of the artificial kind, as well as natural, which are proper to be introduced into scenes of this kind. Statues, buildings,
and

and other ornaments in good taste, and well executed, may unite with great propriety with natural objects, and heighten their effect. I do not speak of these ornaments as to any particular beauties they may individually possess, but merely as coinciding with the general effect, and nature of the prospect. They are, however, to be employed cautiously, since, if injudiciously, or even too frequently introduced, they give an air of frivolousness and affectation to the whole, which renders it an object of contempt and ridicule, rather than of admiration.

More, I think, might be said against excluding parterres of flowers, which were so constant attendants upon the old gardens, and so rarely seen at present. We all know that several kinds of flowers are exquisitely beautiful, and that their beauty and perfection depends on certain circumstances relative to their culture. Great care is necessary, and a separation from other plants, both of which suggest the parterre as the most proper and convenient way of producing them. I confess parterre divisions possess no remarkable beauties in themselves, but I think, at the same time, that they have nothing so shocking to the most delicate taste, that should hinder their being employed, when they are the harbingers of such beautiful productions of nature. A square or an oblong border has nothing obviously absurd or disgusting in its appearance; and as to its being artificial, it may be said in defence of it, that it is not an imitation of any thing in nature, nor meant to be so, but solely calculated for utility, as an instrument necessary to the production of beauty; and, considered in this view, we might, with equal reason, object
against

against a house as an unnatural, and therefore, an improper object, as against the divisions of a flower parterre.

I grant indeed, that they have been whimsically, and often absurdly arranged, and fashioned; but such I do not here defend. I only maintain the cause of parterres, on account of the beauties which they are necessary to produce: not of any they themselves possess.

An Essay on the Diversions of Hunting, Shooting, Fishing, &c. considered as compatible with Humanity.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

WHILST the general constitution of society remains, such as that no man, however obscure, can be considered as unconnected with the rest of his species; whilst, in every situation, our conduct and sentiments, in some degree, invariably produce an influence on those of others; no inquiry, which respects the genuine motive of such actions, as are frequently committed, whether their object be, the pleasure of the individual, or the benefit of society, ought to be regarded as unworthy of serious attention.

The prevailing, though much to be lamented propensity of individuals, to justify their own failings, by the detection of similar weakness in superior characters, renders such an investigation the more necessary; and if, in the prosecution thereof, it should appear, that unworthy motives have been erroneously ascribed to some actions, which may be traced to a different source; or that from the peculiar constitution of human nature, some weaknesses are inseparable from kindred excellence; such discoveries would prove useful acquisitions to our fund of knowledge; they would tend to rectify the mistaken conceptions

ceptions of the ignorant, or to improve the discriminating faculty in those, who are most easily seduced by the influence of example.

In reasoning concerning a species of animals, which we suppose, governed by a principle superior to that of instinct, it is desirable to trace a consistency between sentiments and actions, as on this alone, our claim to virtue and to reason seems founded. On a superficial survey, however, such a consistency appears but ill supported in the conduct of those, who, whilst they discharge all the moral duties, and in an especial manner, practise the virtues of hospitality, humanity, and benevolence, are yet capable of discovering considerable pleasure from those amusements, the professed object of which is, to deprive of life an innocent animal, unacquainted with those desires which spring from luxury, and asking no more of the bounties of our common Parent, than is necessary to its own support and existence.

To be prompted to such actions, not from any necessity to gratify the wants of nature, but solely from the desire of amusement, appears, at first view, repugnant to every principle of humanity, and seems more characteristic of the ferocity of a savage, than of the clemency of a civilized being. What then shall we conclude! Are there no characters exempt from inconsistency? Or is virtue an empty name, without precise meaning? The mind shrinks with aversion from either conclusion. Let us therefore take a more intimate view of the motives to such actions, and, perhaps, they may admit a solution, less repugnant to our feelings.

From the attributes justly ascribed to the benevolent Author of our existence, we may
I safely

safely conclude, that every propensity, with which the human mind is endowed, is not only necessary, but even conducive to our happiness, whilst indulged in a proper degree. This is not more true, of the mild and gentle dispositions, those which seem to be nourished by the "milk of human kindness," than of our more active and lively propensities, those which excite to the most vigorous and toilsome exertions.

The love of fame gives a glow, an enthusiasm to the feelings of the possessor, when circumscribed within proper limits, which leads him to combat fatigue and danger, to triumph over toil and difficulty, and smile amidst the anguish of pain and death. Yet the same passion, uncontrolled by reason, hath prompted the most abject submission, the most licentious excess; it hath produced the most baneful disorders in society, and, instead of deifying human nature, hath made earth the abode of those spirits, which the poets have assigned to the confines of Tartarus.

We may remark the same, of every other disposition of the human mind, in the exercise of which, the excess, or the deficiency alone is injurious; but there is none, the limited use whereof, doth not contribute to the happiness of the individual, and the good of society.

Not to wander, however, too far from our subject, let us, for a moment, consider man in a state of nature, whilst he is yet unacquainted with the blessings which spring from civilization, or has conceived an idea of pleasure, superior to that which arises from the gratification of his appetites. His own personal safety, with that of those who are dependent on his protection, joined to the daily cravings of nature, first dictate the necessity of waging war with many of those
animals,

animals, with whom he hath hitherto lived "joint tenant of the shade."

Perhaps these necessities, however, would not always be sufficient to overcome that love of ease, which is so natural to a state, wherein men seem only a small degree elevated above the rank of brutes. Perhaps, if other inducements were not superadded, he would not be studious to plan, bold to resolve, and active to engage in those dangers and enterprizes, without which, he must frequently be deprived of this species of food, and obliged to substitute others, more easily gained, but less adapted to the health and vigour of the animal œconomy. Without insisting too much on these presumptive reasons, it is certainly a kind provision in the constitution of man, that those exertions, which are dictated by necessity, should also be inspired by inclination; and that, whilst his employment is made subservient to the means of his existence, it should also become a principal instrument of his pleasures.

These remarks, however, principally apply to the rude and savage state of man, which, happily for society, is now almost unknown. There is no longer a necessity for an individual to be himself the executioner of the animal destined to be his subsistence; yet, as hunting, shooting, angling, &c. are still pursued, with as much avidity as formerly, it is necessary, if we propose to justify these diversions, to attempt it on principles, which apply to a state, wherein men are humanized, by laws and government, and by the refining influence of arts, sciences, and religion.

It will be generally allowed, that the health and vigour of the intellectual, as well as of the corporeal

corporeal system, require frequent exercise, and that their very existence almost depends upon it. It is also pretty evident, that to induce such a degree of exertion as will promote these ends, there must be something to stimulate and incite; the final cause being too remote an object. Hence, every amusement which exercises the powers and faculties of man, if not improperly expensive, nor necessarily attended with a neglect of more noble and important pursuits, is, in this point of view, not only not censurable, but meritorious.

Such, however, is the constitution of man, that health alone will not satisfy his aspirations after happiness; and it is clear, that exercise is not more necessary to the perfection of his faculties, than to the promotion of his pleasures. In the words of an elegant writer, equally distinguished for depth of thought, and benevolence of character *, “ Labour is the chief ingredient of the felicity to which man aspires, and all his enjoyments soon become insipid and distasteful, when not acquired by fatigue and industry. See the hardy hunters rise from their downy couches, shake off the slumbers which still weigh down their heavy eye-lids, and ere Aurora has yet covered the earth with her flaming mantle, hasten to the forest. They leave behind, in their own houses, and in the neighbouring plains, animals of every kind, whose flesh furnishes the most delicious fare, and which offer themselves to the fatal stroke. Laborious man disdains so easy a purchase. He seeks for a prey, which hides itself from his search, or flies from his pursuit, or defends itself from his violence.

* See the Stoic, Hume's Essays.

violence. Having exerted in the chase, every passion of the mind, and every member of the body, he then finds the charms of repose, and with joy compares its pleasures to those of his engaging labours."

If exercise, then, be necessary to the health and well being of man; if it be also necessary to those pleasures, for which nature hath inspired him with the thirst; and if hunting, shooting and fishing furnish stimulating motives, which, in their absence, it would not be easy to supply; these diversions may be esteemed both innocent and virtuous, whilst considered solely with respect to the agent; and it remains only to examine, how far, to the united motives of pleasure and advantage to man, other reasons may be added, in justification of actions, which respect the lives and happiness of the brute creation.

Man, as lord of the creation, regards every other animal as intended for his necessary use, and subservient to his reasonable purposes. This prerogative seems to have been intended for him in the original constitution of things; and it is fully evident, that the proper exercise of it, is not more favourable to his own, than to the general good. Of some animals he prolongs the lives, and provides for the support, to make them conducive to his own convenience. Others, doomed to contribute to his sustenance, are cut off ere they attain maturity*. Even if it were not expedient to sacrifice these to the indispensable wants of man, necessity would equally prompt him to their destruction; since, if they were

I 3

left

* In the last class may be enumerated most of the victims to the diversions we speak of.

left uninterruptedly to provide for their own support, and to propagate their species, their increase would soon be incompatible with his existence, and probably, with that of their own.

It would, perhaps, be too hasty an assertion, to affirm, that death to brutes is no evil. We are not competent to determine, whether their existence, like our own, may not extend to some future mode of being, or whether the present limited sphere is all in which they are interested! On so speculative a question, little could be advanced with precision; nor is it necessary for the investigation of the subject before us. If we may be allowed to reason only from what we know, it may safely be conjectured, that death to brutes is no positive evil; we have no reason to believe, they are indued with the gift of foresight, and therefore, even admitting that with them the pleasures of life exceed its pains and its cares, in terminating their existence, they only suffer a privation of pleasure.

Though the tie of natural affection is, perhaps, not less strong in brutes, than in the human species, yet it is often necessarily dissolved, and of much shorter continuance. It is also to be remembered, that, on the present plan of pursuing these diversions, such a regard is had to the circumstances and situation of animals, that no helpless, feeble progeny is left to bewail the loss of an affectionate parent; or, from the want of its providence and protection, to perish from exposure to rapacious animals, or the more cruel attacks of want and famine. The fate of an individual may, therefore, be considered as unconnected with that of any of its species; and if

if it be allowed, that an untimely period of its existence is not to it any evil, the mode of its suffering death will not only be no objection to the diversions we speak of, but will furnish reasons of considerable weight in their favour.

The tie of natural affection, it hath already been observed, is not weak amongst brute animals; but it may be remarked, that though in many cases it is so strong in parents towards their progeny, the reflected attachment seems to subsist, only whilst the young offspring are incapable of providing for themselves. When they attain to maturity, the connection is, in most cases, dissolved, and the relationship forgotten. How pitiable then must be the situation of that animal, whom age, with its attendants, weakness and disease, hath reduced to a feeble and helpless state, incapable of providing for itself the necessary subsistence, a prey to continual apprehension from those animals whose attacks it is unable to fly from or repel; and at length languishing to the period of its existence, consumed by famine and wasted by disease? Compare with the fate of such an animal, that of the timid hare. She meets the opening morn in health and vigour, and with playful frolic wantons on yon upland hill, enlivened by the beams of the rising sun. No feeble pulse or languid eye, indicate a disordered frame; no anticipation of her approaching fate inspires her with apprehension. All is gay and lively, like the prospect around her. On a sudden, however, the scene is changed, the echoing of the horn resounds from the adjacent valley, and the cry of the deep-mouthed hounds thunders towards the hills. She becomes motionless with fear, when a second alarm rouses her from her trance; she flies, and with eager

steps seems to outstrip the winds. Men, horses, and dogs instantly join in the chase, and the forest echoes to the wild uproar. The hare doubles—the swiftness of her speed abates—fear more than fatigue, retards her flight—she faints at the noise of the approaching hounds—redoubles to elude their pursuit—her feeble limbs are unable to perform their office—and now—breathless and exhausted, she is overtaken, and torn in pieces by her merciless pursuers.

Such a doom seems severe, and hard is the heart which doth not commiserate the sufferer. Its apparent severity will, however, be much mitigated, if we consider the quick transition, from perfect health to the expiring conflict. Death, brought on by disease, or the decay of nature, would be much more to be dreaded; and compared therewith, the fate of the partridge from the gun of the fowler, or of the trout by the rod of the angler, is mild and enviable.

To recapitulate then what hath been advanced on this subject—We have seen the human mind, in every age, endowed with a strong, natural inclination to these diversions. In the savage state, we have seen, that the situation of man renders such a propensity absolutely necessary; we have seen it become, at once conducive to his convenience, and his pleasures; we behold him emerge, from a state of uncivilization, into polished life. This propensity still accompanies him; it stimulates him to exercise the efficient cause of health; it inspires him with a love of industry and activity, the certain source of true pleasure; he becomes habituated to fatigue and exertion, despises danger and difficulty, nor dreads exposure to those elements, from whose severity he acquires strength of body, with vigour
and

and firmness of mind. We have seen, with respect to brute animals, that, being destined for the use of man, in depriving them of existence, he disturbs not the order and intention of nature; that in sacrificing them to his pleasures, he neither destroys nor diminishes their portion of enjoyment; and that, in exercising the prerogative with which he is invested, if he were not thus prompted by inclination, he would be compelled by necessity.

It may be urged, if not as an argument in favour of these diversions, yet as a circumstance which should incline us to caution in condemning them, that they are pursued by many individuals, who are distinguished for those virtues of the heart, which seem totally inconsistent with thoughtless or with intentional cruelty, and, which are at once the ornament and the blessings of society.

The Patriot, or the Citizen, who, anxious for the good of his country, and of mankind, bends all his thoughts and all his faculties to the promotion of the public weal; who sacrifices the comforts of ease and of repose, foregoes the sweets of domestic bliss, nor is withheld by the charms of social converse, when his exertions can tend to relieve the unfortunate from the burden of affliction, and to enliven the face of sorrow with smiles of joy; will yet, when leisure, from these more noble occupations permits, join in the pleasures of the chase—arrest the pheasant in his aerial flight—or ensnare the inhabitants of the dimpled lake. And surely the heart, that makes “all human weal and woe its own,” cannot rejoice in acts of inhumanity—Surely the generous passions of philanthropy and benevolence,

violence, can never inspire or accompany a cruel deed!

It would exceed the limits of this Essay, to take a comprehensive view of the human mind, which yet is not unnecessary in the investigation of this subject. It might then, perhaps, appear, that amidst all the variety and eccentricity, which the contemplation of a given character presents, the primary dispositions, the original motives, and springs of action, are extremely few. If this were proved, the seeming inconsistency between many of the actions of an individual must disappear; as it would be unfair to reason from any partial view of his character.

Perhaps the dispositions, which incline us to these diversions, are the same which, under other circumstances, incite to the most heroic actions. The courage gained in the field, may be exerted to restrain the insolence or ambition of a tyrant; exposure to fatigue, and the inclemency of seasons, qualify us for those exertions which our stations, as members of society, may demand; and he who, fearless of danger, is emulous of distinction in the chase, may equally pant for glory, when the invasion of his country prompts him to repel her foes.

We may further observe, that if Nature, with a liberal, but not lavish hand, hath bestowed on all her offspring, those powers and propensities only, which their own necessities, or the general order and œconomy of the system require, we shall be unable to discover her intention in the gifts of scent to the hound, swiftness to the grey-hound, and sagacity to the pointer; these being amongst the number of innate instinctive faculties, which can only be
exercised

exercised in some of the diversions we speak of, and for which purposes, we may therefore reasonably presume they were given.

Upon the whole, may we not then conclude, that man by co-operating with such animals, employs both his and their faculties on the purposes for which they were partially designed: thus tending to complete the bounteous scheme of Providence; the happiness and well-being of all its creatures?

On the Influence of the Imagination and the Passions upon the Understanding. By the Rev. Thomas Barnes, D. D.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

A SENTIMENT was advanced in conversation several evenings ago, in this place, which to some gentlemen appeared strange, or rather *false*. The respect I owe to this Society, and above all, to Truth, obliges me to endeavour to defend a point which appears to me to be not only just, but very important.

In the conversation before alluded to, it had been asserted, "That an energy imparted to one power of the human mind, will often communicate a degree of energy to the rest, and thus assist and quicken their operation."

In proof of this it was maintained, "That in many cases the vigour of *imagination* will give correspondent vigour to the *judgment*," and "That a degree of warmth and *sensibility* will be greatly favourable to the clearness, as well as to the celerity, of the perceptions of the *understanding*."

This sentiment will probably alarm those who have implicitly received what is so generally asserted, "That pure and simple truth has nothing to do with imagination, feelings or passions; and, that he will bid the fairest for successful inquiry into any subject, who can divest his mind

“ mind most entirely of all affections, and bring
“ it into a state of absolute indifference, and
“ apathy.”

It is not uncommon to hear the Imagination condemned as a criminal of the most dangerous nature, whose province is, at the best, only to amuse, who is a sworn enemy to truth, and whom Reason wishes to banish as far as possible from her throne. How often have we known what was very dull, for want of some seasonings of imagination, supposed to be, for that reason, very deep? whilst on the other hand what was enlivened by the animation of an active fancy, was censured as flimsy and irrational? As if a brilliant imagination could not possibly become the companion and assistant of the purest understanding!—That it may, is the point which this paper attempts to prove.

In supporting this hypothesis, I beg leave to hazard a description of the human mind, which some may not very readily admit. In judging of the mental powers it does not appear to me philosophically just to describe the soul as consisting of several distinct and discordant faculties, of which some are commissioned perpetually to oppose and contradict the others. The proper idea of human nature seems to be, “ That it is *one uncompoundd essence*,
“ continually in motion, and receiving different
“ denominations according to the different
modes and circumstances of its movement.” Instead of considering the understanding, memory, passions, and will, as distinct and opposite powers, or as unconnected tenants under the same roof, would it not be more just to consider them all as modes of the *mind itself*,
and

and as each of them bearing the common nature and character of the whole united spirit? We should then consider the mind itself as understanding, the mind itself as judging, remembering, feeling, willing. And this idea would be exactly consonant to many facts, and phenomena of human nature, which will be hereafter mentioned.

However the common representation of human nature, as consisting of several contending powers, may have been figuratively adopted in order to solve some appearances, such as, the experience of conflicting passions, or of opposite tendencies in the soul, yet it is not founded in philosophical truth, and, if not properly guarded, by being always considered merely as a figure, it may lead to falsehood and absurdity.

The full elucidation of all these positions would swell this paper to a length far beyond the limits wisely appointed for our communications, which, being intended only as a subsidiary to conversation, should rather contain hints than a regular composition of finished and artificial sentences. I may add, this subject would have received its best illustrations and support from *morals* and *religion*. But, as these would lead me too much into a professional line, I shall endeavour to draw the arguments from those lower subjects of *taste*, *criticism*, and *polite literature*, by which it appears to me, to be unanswerably supported.

The points we undertake to defend are these ;
 “ That the imagination and passions may, within
 “ proper limits, be of the utmost service in
 “ giving strength and clearness to the understanding.

standing. And, that this arises,—from the
 “ nature and office of the imagination,—and
 “ from the principle before-mentioned, that the
 “ energy of one power may be communicated to
 “ the rest, with the greatest advantage.”

It is owing to the narrowness of our faculties, that we do not comprehend the substance of the human mind. Of its operations, however, we can speak with certainty. I represent it to myself as one uniform and simple essence, liable to be moved or affected by the various objects around it, or, by the flow of ideas continually passing before it—and, according to the state and temperament of the whole invisible mass, judging, feeling, willing, acting. Hence, it will follow, that it will judge, and feel, and act, not according to the impulse of some distinct and unconnected faculty, but according to the state and disposition of the whole mind.

And is it not true in fact, that men do thus judge, and feel, and act; not according to the movement of a single power, but according to the general character and complexion of the heart? The poet has beautifully illustrated and enforced this sentiment.

----- “ The difference is as great between
 “ The *optics* seeing, as the *objects* seen.
 “ All manners take a tincture from our own;
 “ Or come discoloured, through our passions shewn.
 “ Or Fancy’s beam enlarges, multiplies,
 “ Contracts, inverts, and gives ten thousand dyes.” Pope.

Do not all politicians judge upon every article of news, according to their prepossessions? Is it not of equal importance, in education, to give a proper

a proper bias to the heart, as to furnish proper ideas for the head, in order to produce rectitude of mind? Hence the sanctity of error. Hence the different manner in which you judge of the same actions in a friend, and in an enemy. Hence all the advantages of manner, of oratory, of address. And hence all that fascination of the graces, upon which, if a noble author has said true, so much depends. In all these cases the understanding acts, not as a single insulated principle, but as taking its tinge and impression from the feelings, the imagination, and the heart.

This fact will probably not be contested. But it will be said, "That these passions are the sources of all our errors, and that, if we could entirely lay aside imagination and affection, we should judge upon every subject, more impartially, and therefore more truly."

Allowing that truth is ever one and the same, yet if, as the foregoing facts evince, the same truth will appear very differently to different minds, and to the same mind at different times; if the disposition and frame of the mind be a kind of medium, through which the same object shall appear amazingly diversified, most amiable to one, most disgusting to another. Then it should seem to follow, that what is most desirable to a right judgment, is, not that the mind be divested of all its affections, that the imagination be laid asleep, and that the understanding alone be employed in the contemplation. To me, all this appears to be neither necessary nor possible: but that the whole united mind, considered as comprehending all its various powers, shall be in a proper state for the investigation
and

and reception of truth, and that the imagination and passions shall be of such a temperament as to assist the judgment in its determination. This is not a state of absolute inaction; but of action suited to their proper nature and office, in subordination to the higher powers of reasoning and judgment.

If the understanding were that pure and simple principle which many represent it to be, entirely distinct from all the passions, and able to judge best of every truth when most separate from their influence, we should not, surely, observe so much diversity of judgment, such amazing variety of opinions, upon almost every subject of human life. Wherever it is *possible* for human affections, interests or feelings to insinuate themselves, we find a tinge of their nature in the judgment. If we suppose the mind itself to judge, according to its nature and character, we shall immediately perceive that its sentence must be coloured and diversified—that the judgment will fashion itself to the state of the heart—and that in almost every instance a false taste or feeling will lead to a false opinion, whether in poetry, painting, music, criticism, oratory, or art in general. Is there not an almost universal conformity between the feelings and the judgment? Even vice itself, in the paroxysms of temptation, for a moment, seduces the understanding, and blinds the reason. At that moment the sinner promises himself impunity and enjoyment. Nor is it till the temptation is past, that the mind sees again the deformity and danger of vicious conduct.

But it will be asked, “Are not the passions then the causes of our wrong judgments?”

Most

Most certainly they are. But, upon the same principle, that wrong passions lead to wrong judgments, right passions would lead to true. If the mind were properly affected, it would judge properly.

But let us inquire more particularly into the nature and office of the Imagination—for these are, I persuade myself, very commonly, and very greatly, mistaken.

Imagination is that power, or more properly, that act of the mind which assembles, compounds, divides its ideas, not in the order in which they first came into the mind, for that is the province of memory, but in any order, and upon any principles it chooses. It ranges abroad through the immense magazine and repository of ideas, treasured up there, and joins together, or separates, at pleasure, ideas, qualities and forms. It may be called the servant or labourer of the mind, continually employed to bring before it, from its amazing storehouse, materials with which to build up its conclusions. It is the ever busy, patient, indefatigable drudge, toiling for the common benefit and assistance of all the other powers; and does not deserve the indignities and reproaches, it is continually receiving. How often is it forced to be present, and even to give assistance, in the condemnation and execution of itself? How many, with declamation most extravagant, with ideas most deranged, with apprehensions most fanciful, have abused the poor imagination, whilst all their censure and alarm have had no better than an imaginary foundation?*

A mind

* . . . "turbida terret imago." Virgil. *Æn.* IV. 353.

A mind too imaginative does, indeed, often join its ideas together in wild and ridiculous associations. One who is called a wit, joins only those which appear odd and fantastical. But he whose judging are exactly poised by his imaginative powers, who is, according to our scheme, at once lively to conceive, and sober to judge, collects together only those ideas which are proper to set the subject before him in such a light, as to enable him to form an exact determination. The power of imagining is therefore, in its place, as necessary as the power of judging. Suppose a mind which could only remember—It would fall at once into the track marked out by others, and would never employ its own powers, by reasoning and determining for itself. Accordingly we find that persons of the strongest memory have generally the weakest judgments.

If these principles are just, a mind which could not imagine could not reason. It would have no materials before it on which to form its decision. Its view of any subject would be narrow and defective. Observe, on the other hand, a mind keen and fervent in the prosecution of a favourite subject, viewing it attentively on every side, catching every ray of light which can illuminate, and every kindred sentiment which can illustrate it. Without animation and ardour, these would never have been discovered; without imagination and affection, the understanding would have lain torpid and inactive. Fancy, that noble and necessary power, has placed the subject in every possible combination of form and circumstance, has called in to its aid ideas, images, and analogies, which,
at

at first, seemed most foreign and inapplicable; and has thus beheld it in aspects, which the dull plodder would never have imagined. By this means a knowledge is acquired, various, extensive, and exact, beyond what could otherwise have possibly been obtained. The office of the understanding, is, merely that of a judge, to pass sentence upon the cause before it. The imagination collects and arranges the evidence, and brings it before the deciding power in such a form as may lead to an accurate and judicious determination.

This influence of the imagination and passions upon the judgment must, however, differ greatly, according to the different kinds of evidence of which different subjects are capable. In mere mathematics, where the mind has to contemplate pure demonstrative truth, little more is necessary, than such a degree of memory as to keep in view the steps of the process, and so much understanding as to be able to apply the plainest axioms, and to see the truth of demonstration. Surely, no great exertion or exaltation of mind is necessary to this. You would not call that a superior spirit which was able to see, with infallible certainty, truths, of which, when properly understood, it is impossible to doubt.

Here we grant, high degrees of imagination, sensibility, taste, are not necessary. A mind, which could not see the certainty of such conclusions, if able to trace, and to remember the steps by which it had proceeded, would hardly deserve to be called rational.

Those, certainly, are the greatest and noblest spirits who can exert the whole collected powers of their minds upon the contemplation of important

portant subjects, and determine with clearness and truth, where the evidence is not so irresistible, as that the conclusion cannot possibly be mistaken. The most common, the most important, the greatest subjects which can come before the human mind, are not capable of demonstrative evidence. Yet they have evidence of a peculiar kind, which can only be discerned, in its full proportion, by a mind properly prepared to receive it. Besides memory and understanding, you must call in other powers. The heart must be in right order. The mind must feel and imagine justly, in order to a perfect sentence.

Let us take, for an illustration, one of the most respectable and useful professions—that of a Physician. The science he professes is not, surely, that of demonstration. He will himself acknowledge that it is only a science of probability. Suppose him devoid of imagination, and of feeling. How ill qualified would a merely mathematical mind be, to prescribe, in cases which demand, and almost every case in some degree demands presence of mind, largeness of thought, a view to remote and possible consequences, together with that quickness, penetration, and sagacity, which must unite together to constitute the *skilful physician*?—Take common life. What is *Prudence*, but another name for an ability to imagine all the possible or probable consequences of such or such a conduct, of foreseeing such and such difficulties, and of balancing the good and evil in such a manner, as upon the whole, to avoid the greatest evil, and to obtain the greatest good? But how could this possibly be done without a lively, active, and well directed imagination?

Nay,

Nay, we may go farther and say, that even a Mathematician will make very little progress in demonstrative science, without the aid of this noble, but much mistaken and abused faculty. Here, it is true, imagination has the narrowest range: but it would be false to say, it has no range at all. For what are the subjects of his boasted reasonings? They are *points, lines, superficies*, all of which he can only imagine. A Point has neither length, breadth, nor thickness. A Line has length, but neither breadth nor thickness. A Superficies has length, breadth, but not thickness. Are then Lines, Points, or Superficies, objects of vision or of sense? By no means. They are the mere creatures of fancy. His *Figures* likewise of circles, squares, &c. are not perfect. They contain innumerable excrescences and deformities; and yet, his reasonings suppose figures exact and faultless.

And how often must imagination present before him distances, heights, orbits, &c. which he has not immediately under his eye, which he cannot possibly conceive without the aid of fancy? The application of mathematics to Astronomy, Navigation, &c. demands the same assistance. Who would scruple to say that Sir Isaac Newton enjoyed a brilliant imagination? In sketching the outlines of his amazing system—in roving through the pathless wilds of space—in contemplating

“The dependencies,
“The bearings, and the ties”

of

of this stupendous universe, must he not have possessed a fancy of the boldest wing, yet accompanied in all its flight by the most wise and watchful reason? Let me just mention another exalted character in proof of the same point—Mr. Locke. No where do you perceive stronger lines of a vigorous and active fancy, than in the writings of this immortal philosopher. His stile is full of imagery and allusion, the most beautiful and happy. He has all the signatures of a glowing, and, at the same time, of a sober and cautious mind. For such imagination only do I plead—under the command, and employed in the service, of that judgment, whose province it is to direct and to control.

Even in the act of *reasoning*, which is generally esteemed the most solemn and serious process of the mind, imagination is essentially necessary. For if the mind be not able to chuse with advantage those intermediate ideas, on which its reasonings depend; if it is not able, by means of this excursive power, to range abroad; to view its subject on every side, to catch minuter, as well as larger similitudes and differences; if in one word, it has not activity, comprehension, quickness, all which depend chiefly upon imagination, it will not possess, in any considerable strength, that *illative power*, which we acknowledge to be so noble a faculty of human nature.

If the preceding observations are true, with respect to mathematics—the region of science which seems most remote from the fairy land of fancy, there will be little difficulty in proving our point with respect to those provinces which
lie

lie nearer to its confines. And in its own province, in all that extensive and beautiful domain, in which the pleasures of the imagination grow, as in their native soil, it would be ridiculous to ask, whether imagination be not conducive to exactness of judgment. It would be just the same as to inquire whether a man must have eyes to judge of visible objects; or ears to judge of sounds. Through all the wide empire of criticism, of taste, of poetry, of painting, of music, of arts, fancy reigns with almost sovereign sway. A poet, or an artist, without imagination, might as well be without ideas. Mr. Hayley has very justly observed, "That three things are necessary to constitute a sound critic—Good understanding—lively imagination—refined sensibility*." In general, to judge well upon any subject, you must have a kindred spirit. If the poet must be "alive to fancy," a reader of poetry must inherit a portion of the same inspiration.

Let us suppose a critic, such as, perhaps, the world has sometimes seen assuming the name, to pass sentence upon Milton's *Paradise Lost*. Does he relish and enjoy this divine performance? Does he taste its exquisite beauties? Does his imagination glow with its descriptions? Does he sensibly feel the sweetness, richness, and loftiness of its language? Is he alive to all the superior charms of its subject, its scenery, and its execution? Alas! No. Like the fly on St. Paul's Cathedral, he stumbles at a straw, or

* Hayley's *Essay on Epic Poetry*. Notes to the first Book.

or a hair. But, is this cold-blooded thing, whose scanty soul cannot expand itself to the dimensions of such a subject, who cannot take in, at one grand and ennobling view, its whole extent and adjustment, the connection of its parts, the characters, the machinery, the end—is he the proper critic of *Milton* *?

Imagination is necessary to represent to the mind all things distant, future, invisible, and even past, when they are not exactly recalled by memory. How wide! How important its province! In *religion*, the happiness of Heaven, the nature, character, and employment of superior beings, the solemn processes of judgment—Eternity—and even the Deity himself, can only come before us as drawn by the imagination.

K

In

* “How did Garrick speak the soliloquy last night?”
 “Oh! Against all rule, my Lord, most ungrammatically.
 “Between the nominative case, which, your Lordship
 “knows should govern the verb, he suspended his voice
 “a dozen times; three seconds and three fifths, my Lord,
 “each time.” “Admirable grammarian!” “But
 “in suspending his voice—was the sense suspended like-
 “wise? Did no expression of attitude or countenance fill
 “up the chasin? Was the eye silent? Did you narrowly
 “look?”—“I looked only at the stop-watch, my Lord.”
 “Excellent observer!”

“And what of this new book the whole world makes
 “such a rout about?—“Oh! it is quite out of all plumb,
 “my Lord.—Quite an irregular thing! Not one of the
 “angles at the four corners was a right angle.—I had my
 “rule and compasses, my Lord, in my pocket.”—“Ex-
 “cellent critic!”

“And for the epic poem your Lordship bid me look
 “at—upon taking the length, breadth, height, and depth
 “of it, and trying them at home upon an exact scale
 “of Bossu’s—’tis out, my Lord, in every one of its
 “dimensions.”—“Admirable connoisseur”

Sterne.

In History you continually imagine characters, events, times, places, circumstances, which you have never seen. These are portrayed to your fancy by the pen of the historian; and your pleasure and improvement will very much depend upon the clearness and celerity with which you paint to yourself the different scenes, which are passing before you. All the pleasures of taste depend absolutely upon a vigorous and cultivated imagination. Even in the actual contemplation of the scenes of nature, imagination is as necessary to refined pleasure, as the eye. Perhaps we might, without great impropriety, call it the eye of the mind. If any person should think this appellation would better belong to the understanding, let him recollect that the eye of the body can give no exact information, till rectified by the judgment. It is so with the imagination. The ideas it presents must be brought before the higher tribunal of the understanding, and receive their sentence, according to its superior determination.

I shall, perhaps, be told of the lover, who sees in his mistress an imaginary idol, decked all over with charms, perfect and matchless in every air, and in every attribute. I shall be told of the amazing change in his judgment, when time and better knowledge have taken the glare from the object, stripped the idol of her divinity, and faded her charms even to ugliness. But, against this exception we meant to guard, by maintaining only a due poise and degree of the imaginative quality.

“ The Lover, the Lunatic, and the Poet, are
“ Of imagination *all compact*.”

Shakespeare.

Minds

Minds, so excessively imaginative, cannot be judicious.

But on the other hand, suppose a person to contemplate excellence, female excellence, without imagination—just as he would a mathematical problem. Would he do more exact and impartial justice to the subject?

Would the fairer sex consent to abide the sentence of such a judge? Would they not justly complain, that though he wore the form, he had not the sentiment, the soul of a human being? Would they not appeal—and who would not justify the appeal—to the decision of a mind, capable of feeling, and of fancy, and therefore rational, and alone competent to judge of that excellence which is fitted to cheer and captivate the heart?

But it has been the hard fate of imagination to be in general spoken of in its excess. We seldom hear it mentioned, by those who declaim against it without hearing of the flights of fancy, the extravagance, the agitation, the wildness, the sallies, the fervours, the eccentricities of a heated imagination. The fervour, the glow, however, belong rather to passion, than to imagination. The imagination indeed may excite the passion; and thus they ascribe the attributes of the effect to the cause.

That imagination may, that it often does transgress its proper bounds, we most readily acknowledge. That it is necessary to hold it in with a tight rein, that it may not run away with the understanding, and lead to conclusions fanciful and groundless, we allow, in its fullest extent. We contend only for that degree, which will consist with the exactness of judgment.

The vivacity and strength of imagination, in children, is astonishing. Their knowledge of objects being very slight and superficial, a few faint resemblances are sufficient to realize and embody them. By degrees, as their knowledge becomes more extensive and exact, their power of imagining declines, the power of judging is improved, and when these two powers have attained their proper balance, the mind has attained its highest capacity.

That "great wits are to madness near allied." That "great geniuses are too imaginative," proves only, that the mind, when in a frame too creative and fanciful, is not sufficiently judicious. But, surely, a degree of warmth may be necessary to a tool for its proper action; and yet that warmth may be increased, till it is improper for service.

It will perhaps be said that lunatics and madmen are under the dominion of fancy, and that upon this account their judgments are erroneous. It is answered, that in general, if you will but grant their premises, they will reason from them, with astonishing quickness and clearness of argumentation. Unhappily, their minds are, in some particular points, by wrong associations, become deranged and extravagant. This is their disease. But the fervour imparted to their minds, seems rather to have sharpened, than impaired, their reasoning powers.

Let then understanding and judgment ever be considered as the presiding faculties of the human spirit. To their controul, let every other power ultimately submit. Let the imagination and the passions be considered merely as their servants, obedient to their command. But
whilst

whilst they are thus obedient, let them have the praise of good and useful servants; and above all, let them not be compelled to criminate and condemn themselves. Or, according to the just simile of the poet,

“ Whilst reason holds the helm—
“ Let passion be the gale.” Pope.

And let imagination fly abroad to collect the various scattered breezes, which thus united into one strong current, may carry the vessel forward, across the ocean of life, under such a pilotage, with safety and satisfaction.

On the comparative Merit of the Ancients and Moderns, with respect to the imitative Arts. By Mr. Thomas Kirshaw.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

Vitaque tam longæ brevior non sufficit Arti.
Fresnoy de Arte Graphicâ.

THE life of man being too short, and the extent of human abilities too confined, to make considerable improvements or inventions in any art, we ought to view the performances of celebrated men, with all the candour and generosity they so well merit.

Even, after all the advantages we have received from the united studies of ages, we may, with great justice say, how small and imperfect is all our boasted wisdom, and, how much to be regretted is it, that we have not made a greater progress in the spacious field of science!—This short essay is intended to point out the excellencies of the ancients in the imitative arts: yet, at the same time, to allow the moderns their due share of fame, in having, not only made some improvements, but inventions, of which the ancients were entirely ignorant.

There is not a doubt, but the ancients possessed a polished taste, and a critical knowledge of the various and exquisite forms of beauty: they knew the arts, could only receive their perfection from ideal beauty superior to what is
ever

ever found, in individual, and imperfect nature. There is no man equal, in strength and proportion to the Farnesian Hercules: nor, any woman comparable, for symmetry of form, to Medicean Venus.

These instances seem to prove, that the authors of the finest remains of antiquity formed to themselves ideas of perfect nature, and collected from various individuals, what no one could supply.

It is said, that Zeuxis, when he painted his Helena, selected five of the most beautiful virgins that could be found; and, whatever nature had formed most perfect in each, he united in a single figure.

Thus painters, and sculptors, render their ideas more perfect, and exalt their Art above Nature herself. In this manner, by contemplating grand and exquisite forms of beauty, the operations of the hand are directed by the image in the mind: but how far to proceed and when to stop, must be left to the judgment of the artist.

That the ancients bear the palm from the moderns in sculpture, will not be contested: their religion sanctified and encouraged that branch of science. Gods, Demigods, and Heroes all conspired to bring it into the highest repute: and their images were often deposited in buildings of the most exquisite taste, to commemorate particular occurrences. The rage for highly ornamented edifices, perhaps never rose to a greater height, than amongst the Romans. These sons of fortune acquired so much wealth, and, by plundering distant climes, had so collected the riches of the whole kingdoms into one city, that there was no way left to

disipate such immense sums, but by engaging in the most expensive works of art. Each ambitious conqueror, desirous to transmit his own actions, and those of his ancestors to posterity, called in to his aid the sculptor, and the architect, whose utmost skill was exerted to blazon their atchievements in the solidity of stone and marble.

This shews, in some measure, why Sculpture outstripped her sister Art; for the specimens of ancient Painting are much inferior to modern productions. They are deficient in colouring, chiaro-obscuro, and keeping. Several of the Classics* tell us, there were but four colours or pigments in use amongst the ancient artists, viz. black, white, yellow, and red. Now, it is impossible to produce, from those colours only, the variety of tints necessary to equal even a tolerable colourist of the moderns. Although this evinces nothing against the abilities of the ancients, we may fairly conclude, that the rich and luxuriant descriptions, handed down to us, are inflated with hyperbole, sufficient to make us doubt the veracity of some of their authors. Unfortunately for these warm advocates, the discoveries of Herculaneum have spitefully contradicted their assertions, and furnished us with means to draw our own conclusions. It is very possible they might admire, and be surprized at a sight of what appeared to them the ultimatum of perfection.

The stories of Zeuxis and Polygnotus raise a smile. The former is said to have painted fruits so naturally, that birds attempted to eat them; the latter to have delineated the character and features of the face so truly, that physiognomists,

* Pliny, Cicero.

nomists, upon sight of the portrait, could foretell the precise time of the party's death. Sir Joshua Reynolds, who may be justly considered as the first artist in the world, thus delivers his opinion.

“ In antique paintings, there are not the
“ smallest traces to make us think, that what
“ we call light, and shade, or a distribution of
“ the work into masses, claimed any part of their
“ attention: these may be ranked amongst the
“ defects of the learned Pouffin*, as well as of
“ the antique paintings: and the moderns have a
“ right to that praise which is their due, for
“ having given so pleasing an addition to the
“ splendour of the art. Pouffin's pure and cor-
“ rect stile was a direct contrast to the florid
“ and inaccurate stile of Rubens†; yet the luxu-
“ riant brilliancy and harmony of the latter,
“ so dazzles the eye, that we cannot help thinking
“ all his deficiencies are fully supplied.” Pouffin
carried his veneration for the ancients so far,
as to give his works the air of antique paintings.
It is certain he copied some of them, particularly
the marriage, in the Aldrobrandini palace at
Rome; which, in the opinion of that great artist
before mentioned, is the best relique of those
remote ages, that has hitherto been found.
Those of the antique paintings which stand
foremost, are fine, and correct imitations of
improved nature; with the chastest outline;
formed upon such certain principles as no one
has yet dared to controvert. “ But they have
“ a remarkable dryness of manner, which is, by
“ no means, recommended for imitation.” The

K 5

compositions

* N. Pouffin, an eminent French painter. It should have been noticed, whether it was Nicholas, or Gasper Pouffin.

† Rubens, a famous Flemish painter.

compositions of the ancients appear to be much better calculated for the chissel, than the pencil.

Chiaro-scuro, or the art of distributing the lights and shadows in a picture advantageously, as well for the repose, and satisfaction of the eye, as for the effect of the whole together, seems to be a modern invention. By the assistance of this part of the science, objects receive more relief, truth, and soundness. The masses of light and shade are formed by a proper distribution of objects, which, by an artful management, are so disposed, that all the lights are on one side, and the shades on the other. Sometimes, reflected lights are necessary; at other times they are used, with a pictorial liberty, to produce the desired effect; it is the knowledge of this that animates the canvas, and gives the appearance of corporeal substance to a flat surface. Rembrandt*, so far from selecting the most beautiful and graceful parts of nature, frequently made a bad choice from among the subjects she affords. And, although he possessed a very moderate portion of true taste, yet the fire and spirit, with which his pictures are finished, cannot be seen without surprize; and the effect produced by his colouring, and expression, demand our admiration. His etchings are collected at a great expence for the cabinets of the curious. The same spirit, which flowed from his pencil, guided his needle. Had this eminent artist visited Rome, and refined his taste, it is supposed, with his profound knowledge of chiaro-scuro, and colouring, he would have been one of the first masters in the world.

That

* Rembrandt, a great artist of the Flemish school.

That part of the art, termed keeping, the ancients seem to have been but little acquainted with, and without a due management of this, every picture would be filled with confusion. Instead of a proper subordination, each groupe or figure, would seem to contend for precedence. This want of order destroys all dignity, and prevents the artist from forming an agreeable whole.

Any attempts in antique landscape, with which we are acquainted, are executed wretchedly. In that part of the art, the superiority of the moderns is manifest.

We have the authority of Fresnoy* to say, "that, Michael Angelo surpassed not only all the moderns, but the ancients in architecture, he quotes the St. Peters at Rome, the Palazzo Farneſe, and the St. Johns at Florence, as proofs of his opinion."

Etching, engraving, mezzotinto, and aquatinta are all of modern invention, and of great utility. They deliver down to us accurate copies from the works of eminent men at a small expence; and diffuse abroad the bright flame of science, so that even those, who are far distant from the centre of the arts, may rouse their souls to action, and enlighten that spark of genius, which might hitherto have lain dormant. From these meritorious, and ingenious improvements, we can judge, with great certainty, of the various merits of an artist, and every part, but the colouring, may be critically examined.

The stile of the Italian, Flemish, or French schools, may be pointed out by these copies,
and

* Fresnoy, a French artist well known for his Latin poem *de Arte Graphica*.

and frequently the very manner of pencilling, by particular artists, is faithfully represented. These arguments are not meant to depreciate the antiques, they will always engage our admiration, and most highly merit it.

The advantages, received by the moderns, from studying the ancients, are freely acknowledged. It is no uncommon thing to hear some people lament the decay of genius, and the decline of arts, in these times, when compared with the Augustan age. However that may be, the moderns have a right to claim their full portion of fame, in many arts, in which the ancients could not instruct them.

From the candour of this learned Society, the writer of this Essay claims protection, and hopes, an attempt to investigate truth, will not be deemed audacity.

A brief Comparison of some of the principal Arguments in favour of Public and Private Education. By Thomas Barnes, D. D.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

THERE are few questions more important, when considered in every point of view, than those which relate to *education*. Allowing the original differences stamped upon human minds to be great, yet education marks far greater and stronger lines of distinction between one mind and another. It was education which formed the polished and lettered sage, in the æra of the highest Grecian splendour. And it is education which moulds the savage Indian for the desert.

"Dii Immortales ! Homini Homo quid præstat !
Stulto intelligens ! Quid interest !"

It is generally said, in praise of the present age, that it is more sensible than any which have preceded, of the immense importance of education. I mean not to detract from the real merit of my coteemporaries, by hinting a suspicion that something must be abated of this high compliment. The object and end upon which modern education is often employed, will not, I fear,

* Terence Eun. Act. II. Scæ. 2.

I fear, do the greatest honour to our discernment, or our piety.

Among the various plans of education, each of which has had its warm admirers, and sanguine advocates, the parent, anxiously interested for the best welfare of his *son*, (for I wish to confine the present subject to *boys*) is often greatly at a loss which to prefer. There are, probably, advantages and disadvantages peculiar to every system. The point to be wished for is to balance these so justly one against another, as to form the proper conclusion.

There are not a few, both in antient and modern times, who contend earnestly for a *public* scheme of education. There are others, perhaps an equal number, who object as earnestly against it. We must imagine the general views of those who embrace the opposite sides of this question to be exactly the same. But they consider the several schemes in different aspects.

I have not the vanity to hope that I shall be able to offer a single argument, which has not been repeatedly canvassed. My utmost wish in choosing this subject was, not to offer something new; but to throw out a few hints, merely by way of introducing a question, than which none greater and more interesting has been, or, by our laws, can be agitated in these meetings.

That we may speak with precision on this subject, it will be necessary to define the terms, *public* and *private* education.

By *public* education, we mean education at a large public school, consisting of perhaps two or three hundred boys, such as *Eton* or *Westminster*; where the boys live in some common apartments destined for this use, or are boarded in
great

great numbers with persons who only undertake to find them commons and accommodation.

By *private education*, we mean education *at home*, in the house, and under the eye of a parent, or private tutor.

Between these two schemes, there will be almost infinite gradations. Exactly in the midway between them, are those schools, where boys are boarded in the house of a master, become parts of his family, and are not more in number, than he can entirely manage and instruct himself.

We may perhaps class the prime objects of education in the following order, beginning with those of less importance, and rising up to those of the greatest. *Health—knowledge—temper—self-government—morals.*

I. HEALTH.

It is questioned, whether the carelessness which must necessarily prevail in a large public school, with respect to the several articles of diet, lodging, dampness, &c—or the constant careful attention paid to all these circumstances, in the house of a parent, be more friendly to health and vigour of constitution. It is said, “That an excess of caution injures both the body and the mind, rendering the one puny, and the other pusillanimous.” It is added, “That in a large number of boys, there are more incitements to play, and to those active athletic exercises, which brace the system, and render it robust and hardy.”

It must be acknowledged that the closeness of a nursery is unfriendly to the constitution. But why must we necessarily suppose a boy to be confined to a nursery in his father's house?

May

May he not be accustomed at home to any degree of hardness at the pleasure of the parent? And are not the principles and conduct of parents, in fact very different? Nor will sufficient incitements to play be wanting, if properly attended to and improved.

With respect to health, then, a boy may have all the advantages, without the many disadvantages attending a more public plan. And, from what I have observed of life, I should be ready to conclude, that children who have been educated upon the system of extreme carelessness in these particulars, have not appeared more vigorous and healthy when they have grown to maturity.

II. KNOWLEDGE.

It is urged, in favour of public education, "That emulation, that strong and noble principle, when well managed, is more likely to be felt in its proper influence when there are many, than when there are few competitors. The numbers, and the abilities of the candidates sharpen the edge of genius and of industry, and thus push on the youthful mind to superior excellence."

It may, perhaps be said, on the other hand, "That to the boy of more brilliant parts, and who stands at the head of his class, the argument from emulation may be allowed. But that these will be comparatively few; and that to others, who are not able to attain this honourable elevation, it will be reversed, for that its influence will tend to discouragement and depression." It may be added, "That, in large schools, boys are necessarily connected together in classes, like horses in a carriage; that they cannot

cannot move on beyond a certain pace ; and that this pace must be accommodated to the parts and quickness of the most indolent and stupid in the class ; or else, it will be, for one boy in the class too quick, and for another, too slow. The consequence will be almost equally prejudicial to both. The one is pushed forward beyond his speed ; he is liable to be continually punished for no fault ; or hurried on through subjects, of which he has not been able to gain any clear and competent knowledge. The other is kept down from those attainments, to which he might otherwise have ascended. This constant and wretched clog, it may be said, will be prevented by having every boy to stand single ; or, at least, by matching boys of equal capacity together, who may thus be urged forward exactly according to their strength, neither dejected by the superior genius of one, nor fettered by the greater dulness of another."

To these arguments it may, I think, with great force, be added, " That, in a very large number of boys, there will always be as many, or more of those who do not excel, as of those who do. If, therefore, the one may be supposed to animate, or to ashamed, the other may, with equal truth, be supposed to keep those in countenance, whose abilities are not so bright, or whose industry is not so unremitting."

In vindication of the order which I have assigned to *knowledge*, it may be observed that the great end of mental cultivation is, to give that exercise and habit to the various powers of the mind, which may enable them to act hereafter in all the affairs of human life with the greatest advantage. It is not merely the quantity

tity of ideas acquired, but the ability obtained by the soul, of thinking, reasoning, and determining rightly, in every event of the changeful scene, which is of the greatest importance *.

III. T E M P E R,

Or, perhaps, more properly *social affections*.

It may be urged by the advocates for *private* schools, "That there the heart is longer under the influence of the softer and more domestic feelings—that reverence to parents, and love to brothers, sisters, and other relations, is there in continual habit—That on these mild and tender charities of life, the temper and the comfort of mankind chiefly depend—And that, in a public school, these amiable scions of the soul have not room to shoot, but must, of necessity, be miserably neglected."

If to this argument it be answered, "That in a *public* education there will be partialities and attachments formed:" it may be replied, "That these are not of exactly the same nature, nor will they have the same influence on future temper and future happiness."

It will perhaps be said, "That in larger schools, connections and friendships may be formed, which may be of the most lasting, honourable and advantageous tendency in future life."

This advantage appears to me to be a very precarious one. Early connections between a
richer

* "Leotychides interrogatus, quid potissimum oportet pueros ingenuos discere! Quæ illis, inquit, ubi ad vilem ætatem pervenerint, usui sunt futura." Cicero.

richer and a poorer boy, founded, probably, on caprice on the one hand, and abject obsequiousness on the other, seldom continue long. Sometimes indeed an honourable union of equals may lay a foundation for future friendship, of the most endeared and permanent nature. And it is possible that some instances may have occurred, of friendships formed between youths whose fortunes were unequal, which have been as beneficial to the one, as honourable to the other. But, as boys are often separated at so early an age, and dispersed into such different scenes and regions, the hope of this ought not to be allowed much weight. And fact will, I persuade myself, bear witness to very few instances of this kind; too few to give any great degree of force to this argument.

IV. SELF-GOVERNMENT.

By this term is meant, "The habit which the friends of *public education* say a boy early forms, in a large school, of conducting himself, of managing his own concerns, and of preparing himself for a steady, independent, manly line of action in future life. Such a school they describe as "a miniature of the great world." And in this microcosm a boy is inured to make his own way, to stand upon his own merit, to exert his own understanding and address, to maintain his own cause and his own consequence, to fight his own battle, to vindicate his own wrong, and to depend upon his own conduct and character for the behaviour he meets with. In this society, it is said, all distinctions are levelled. The son of a nobleman appears as an equal to the son of a peasant. Insignificance, ill-temper,

ill-temper, folly, selfishness, together with the common vices of children (the seeds of similar and stronger vices in men) are discountenanced and discouraged, when they are sure to meet with contempt and hatred. And here those public spirited and manly virtues grow best, which only can secure the general honour and approbation."

It is possible that something must be deducted from this flattering representation. In these little republics, some active and bolder spirits distinguished, probably, for strength and daring, rather than for morals or literary excellence, gain an ascendancy over the rest. The other boys act under them in servile submission to their mandate, carry their burdens, fight their battles, and avenge their quarrels. Hence are learnt habits of fawning and servility. Obedience must be unreserved, under penalty of severe chastisement for rebellion. To crouch, in order to obtain the good graces of one of these leaders of a clan, will probably be the policy of a younger and more timid boy. And he will obtain notice and protection, only by flattery, or submission the most humiliating. The consequence often is, that when he himself rises up to that degree of strength, which enables him to assert his own consequence, he practises all the arts assumed by his former tyrant. And thus a system of vassalage is handed down, from generation to generation. May it not be said, that all this is as likely to produce abjectness of mind as independence; and turbulence, as proper subordination?

V. MORALS.

V. M O R A L S.

The greatest object of education is, undoubtedly to inspire the love of goodness. But here the argument seems greatly to preponderate against the plan of public schools. And yet to this point, as to the all-animating center, should every thing else be directed, and by its tendency to this, should every scheme be estimated. It would be a dreadful bargain to give up morals for learning, or for any other accomplishment*.

It cannot be denied that there is certainly far greater danger of moral infection in a larger, than in a smaller number of boys. A single boy may corrupt many, and disseminate a poison of the most rank and baneful influence. It is impossible, where the numbers are so large, to give that minute and watchful attention to the discipline of the passions, and to the formation of the heart, which is so unspeakably necessary in a good education. Boys of a depraved turn of mind, have often an unlucky kind of wit, a something in their manner, which enables them to do irreparable mischief.

It is acknowledged by a very ingenious and able advocate for public schools†, that the argument from morals lies undeniably against them. But this effect he ascribes—to the neglect of education at home, before they come to school—and to the general dissipation of the age,

* “*Nos liberalibus studiis et disciplinis filios erudimus; non quia virtutem dare possunt; sed quia animum ad accipiendam virtutem præparant.*” Cic.

† Knox.

age, to which even schools themselves, which ought to be the nurseries of better principles and better manners, too frequently accommodate themselves.

If the fact be granted that morals are in greater danger in a public, than a private school, this will be with many parents a conclusive argument. Boys too soon, too easily receive the alarming contagion. And, when it is once received, it contaminates the whole mass of the soul, and spreads its deadly poison through every future stage of life.

It is, however, contended, "That boys, im-mured within the precincts of a private family, are often but ill prepared to stand the shock of future temptation; that they frequently rush from the extreme of confinement to the extreme of dissipation or dissoluteness; and thus atone for former restraint, by future extravagance."

This may have been the case where the confinement has been impolitic, or excessive. But, as this is not necessarily attendant upon the private plan, it cannot be admitted as an universal argument against it.

It is to be regretted that schools in general, of almost every description, pay so little attention to the culture of the heart; though this is in comparison with all others, an object so infinitely superior, that no embellishments of science, no advantages whatever, of any other kind, deserve a moment's regard without it.

And it is perhaps equally to be regretted that so few parents are proper to have the sole direction and management of their own children*.

It

* The saying of Philip upon the birth of his son Alexander,

It is far more easy to form the theoretic idea of a school, which you might call "*The school of virtue and of science*," than to realize it in action. And yet I fear that many parents would not approve of even this school, if it were not likewise, "*The school of shewy accomplishments*," which, with many, are of far greater moment, than virtuous excellence.

The *middle plan*, which we have already mentioned, seems calculated to blend, in some degree the advantages, and to divide the disadvantages of both the others. By enlarging a private school, so as more nearly to approach a public one, you secure every desirable advantage for emulation. And, by having no more than can be under the continual inspection and management of the master, you provide for that particular and constant attention to every individual, which is absolutely necessary to his best improvement.

But upon every plan the whole will depend upon the ability, the industry, and I may add, particularly, upon the manner of the master. The advantages of the best plan may be lost by incapacity and negligence. And even the worst may have a temporary brilliancy, from the superior talents and attention of him who conducts it.

The

ander, pays a high compliment to the philosopher; but Aristotle himself could not command success. His pupil does not seem to have fully answered to his tutor's care.

"Non tam gaudeo, quod natus est mihi filius, quam quod tempore Aristotelis natus est, cui tradatur erudiendus."

The noblest authority is that of love, mingled with reverence. Let us imagine, connected with real abilities, that indescribably happy manner which we have already mentioned, but cannot explain. There will probably be an easy and willing empire, over pleased and unsuspicious subjects. It will be an empire over the heart. Their subjection will be cheerfully paid to one in whom they see powers in their eye so amazingly connected with a temper so amiable, with manners so awfully engaging, with affections so sincere, and with a treatment so generous, manly, and consistent.

But if we recollect a moment the exceedingly difficult points to which education should be directed, we shall perhaps rather wish, than expect, to see any scheme in which they may be all accomplished. To keep up the continual impression of reverence, without intimidating—to restrain the spirits without depressing them—to inspire courage without turbulence—vivacity without forwardness—and diffidence without dejection—to administer praise without puffing up—correction without exasperating—and steady discipline without enfeebling the mind in its best energies.—These are some of the grand objects of education.

Who, that considers the difficulties of this work, the various dispositions, capacities and nursery-educations of boys; and the different tempers, views and talents of parents and masters, will not be ready to make every candid allowance for imperfection? And yet who, that considers its infinite importance, will not wish

with every possible imperfection to be done away?

And who will not be ready to exclaim with the philosopher,

“ Quid munus reipublicæ majus meliusve afferre possumus, quam si docemus atque erudimus Juventutem ? ”

Cicero.

Speculations on the Perceptive Power of Vegetables. By Thomas Percival, M. D. F. R. S. &c. &c.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

----- These are not idle, philosophic dreams;
Full Nature teems with life. -----

Thomson's Spring, Second Edit. line 136*.

IN all our enquiries into truth, whether natural or moral, it is necessary to take into previous consideration the kind of evidence which the subject admits of; and the degree of it which is sufficient to afford satisfaction to the mind. Demonstrative evidence is absolute, and without gradation; but probable evidence ascends, by regular steps, from the lowest presumption to the highest moral certainty. A single presumption is indeed of little weight; but a series of such imperfect proofs may produce the fullest conviction. The strength of belief, however, may often be greater than is proportionate to the force and number of these proofs, either individually or collectively considered. For, as uncertainty is always painful to the understanding, very slight evidence if the subject be
capable

* These lines are omitted in the subsequent editions of Thomson's Seasons.

capable of no other, sometimes amounts to credibility. This very philosopher experiences in his researches into nature; and the observation may serve as an apology for the following jeu d'esprit; in which I shall attempt to shew by the several analogies of organization, life, instinct, spontaneity, and self-motion, that plants, like animals, are endued with the powers both of perception and enjoyment.

I. Vegetables bear so near a similitude to animals in their *structure*, that botanists have derived from anatomy and physiology, almost all the terms employed in the description of them. A tree or shrub, they inform us, consists of a cuticle, cutis, and cellular membrane; of vessels variously disposed and adapted to the transmission of different fluids; and of a ligneous, or bony substance, covering and defending a pith or marrow. Such organization evidently belongs not to inanimate matter; and when we observe in vegetables, that it is connected with, or instrumental to the powers of growth, of self-preservation, of motion, and of seminal increase, we cannot hesitate to ascribe to them a *living principle*. And by admitting this attribute, we advance a step higher in the analogy we are pursuing. For the idea of life naturally implies some degree of perceptivity: and wherever perception resides, a greater or less capacity for enjoyment seems to be its necessary adjunct. Indefinite and low, therefore, as this capacity may be, in each single herb or tree, yet when we consider the amazing extent of the vegetable kingdom, "from the cedar of Lebanon to the hyssop upon the wall," the aggregate of happiness produced by it, will be found to exceed our most enlarged conceptions. It is prejudice only,

which restrains or suppresses the delightful emotions resulting from the belief of such a diffusion of good. And, because the framers of systems have invented arrangements and divisions of the works of God, to aid the mind in the pursuits of science, we implicitly admit as reality what is merely artificial; and adopt distinctions, without proof of any essential difference. *Lapides crescunt; vegetabilia crescunt et vivunt; animalia crescunt, vivunt, et sentiunt.* This climax, of Linnæus, is conformable to the doctrines of Aristotle, Pliny, Jungius, and others. But none of these great men have adduced sufficient evidence to support the negative characteristics, if I may so express myself, on which the three kingdoms of nature are here established. That a gradation subsists, in the scale of beings, is clearly manifest; but the higher advances we make in physical knowledge, the nearer will the degrees be seen to approach each other. And it is no very extravagant conjecture to suppose, that in some future period, perceptivity may be discovered to extend, even beyond the limits now assigned to vegetable life. Corallines, madrepores, millepores, and sponges were formerly considered as fossil bodies: but the experiments of Count Marfigli evinced, that they are endued with life, and led him to class them with the maritime plants. And the observations of Ellis, Jussieu and Peysonel, have since raised them to the rank of animals*. The detection of error in long established opinions concerning
one

* Consult Philos. Transact. Amœnitat. Academic. and Bishop Watson on the subjects of Chemistry.

one branch of natural knowledge, justifies the suspicion of its existence in others, which are nearly allied to it. And it will appear from the prosecution of our enquiry into the instincts, spontaneity, and self-moving power of vegetables, that the suspicion is not without foundation.

II. *Instinct* is a propensity, or movement to seek, without deliberation, what is agreeable to the particular nature, actuated by it; and to avoid what is incongruous, or hurtful. It is a practical power which requires no previous knowledge or experience; and which pursues a present or future good, without any definite ideas or foresight; and often with very faint degrees of consciousness. The calf, when it first comes into the world, applies to the teats of the cow, utterly ignorant of the taste or nutritious quality of the milk, and consequently with no views either to sensual gratification or support. And the duckling which has been hatched under a hen at a distance from water, discovers a constant restlessness and impatience; and is observed to practise all the motions of swimming, though a stranger to its future designation, and to the element, for which its oily feathers and web-like feet are formed. Instincts analogous to these, operate with equal energy, on the vegetable tribe. A seed contains a germ, or plant in miniature, and a radicle, or little root, intended by nature to supply it with nourishment. If the seed be sown in an inverted position, still each part pursues its proper direction. The plumula turns upward, and the radicle strikes downward into the ground. A hop-plant, turning round a pole, follows the course

of the sun, from south to west, and soon dies when forced into an opposite line of motion. But remove the obstacle, and the plant will quickly return to its ordinary position. The branches of a honey-suckle shoot out longitudinally, till they become unable to bear their own weight; and then strengthen themselves, by changing their form into a spiral. When they meet with other living branches of the same kind, they coalesce for mutual support, and one spiral turns to the right, and the other to the left; thus seeking, by an instinctive impulse, some body on which to climb, and increasing the probability of finding one, by the diversity of their course: for if the auxiliary branch be dead, the other uniformly winds itself round, from the right to the left*.

These examples of the instinctive œconomy of vegetables, have been purposely taken from subjects familiar to our daily observation. But the plants of warmer climates, were we sufficiently acquainted with them, would probably furnish better illustrations of this acknowledged power of animality: and I shall briefly recite the history of a curious exotic, which has been delivered to us from good authority; and confirmed by the observations of several European botanists.

The *Dionæa Muscipula* is a native of North Carolina. Its leaves are numerous, inclining to bend downwards, and placed in a circular order: they are jointed and succulent. The upper joint consists of two lobes, each of which is semioval in its form, with a margin furnished

* Lord Kaims's Gentleman Farmer.

with stiff hairs; which embrace each other, when they close from any irritation. The surfaces of these lobes are covered with small red glands, which probably secrete some sweet liquor, tempting to the taste, but fatal to the lives of insects: for the moment the poor animal alights upon these parts, the two lobes rise up, grasp it forcibly, lock the rows of spines together, and squeeze it to death. And lest the struggles for life should disengage the insect thus entangled, three small spines are fixed amongst the glands, near the middle of each lobe, which effectually put an end to all its efforts: nor do the lobes open again while the dead animal continues there. The dissolution of its substance, therefore, is supposed by naturalists, to constitute part of the nourishment of the plant. But as the discriminative power of instinct is always limited, and proceeds with a blind uniformity when put into exertion, the plant closes its leaves as forcibly, if stimulated by a straw or a pin, as by the body of an insect: nor does it expand them again, till the extraneous substance is withdrawn*.

III. If the facts and observations which have been adduced, furnish any presumptive proof of the instinctive power of vegetables, it will necessarily follow that they must be endued with some degree of *spontaneity*. For the impulse to discriminate and to prefer, is an actual exertion of that principle, however obscure the consciousness or the feeling may be, with which it is accompanied. And such volition presupposes an innate perception both of what is consonant,

L 4

and

* See the Annual Register for 1775, p. 93.

and of what is injurious to the constitution of the individual, or species directed by it. But it is the design of this little Essay rather to investigate nature, than to appeal to metaphysical considerations. I shall proceed therefore to point out a few of those phenomena, in the vegetable kingdom, which indicate spontaneity.

Several years ago, whilst engaged in a course of experiments to ascertain the influence of fixed air on vegetation, the following fact repeatedly occurred to me. A sprig of mint, suspended by the root, with the head downwards, in the middle glass vessel of Dr. Nooth's machine, continued to thrive vigorously without any other pabulum, than what was supplied by the stream of mephitic gas, to which it was exposed. In twenty-four hours the stem formed into a curve, the head became erect, and gradually ascended towards the mouth of the vessel; thus producing, by successive efforts, a new and unusual configuration of its parts. Such exertions in the sprig of mint, to rectify its inverted position, and to remove from a foreign, to its natural element, seems to evince volition to avoid what was evil, and to recover what had been experienced to be good. If a plant in a garden-pot be placed in a room which has no light, except from a hole in the wall, it will shoot towards the hole, pass through it into the open air, and then vegetate upwards in its proper direction. Lord Kaims relates, that, "amongst the ruins of New Abbey, formerly a
"monastery in Galloway, there grows on the
"top of a wall, a plane-tree twenty feet high.
"Straitened for nourishment in that barren
"situation, it several years ago directed roots
"down

“ down the side of the wall, till they reached
“ the ground ten feet below. And now the
“ nourishment it afforded to these roots during
“ the time of descending is amply repaid; hav-
“ ing every year, since that time, made vigorous
“ shoots from the top of the wall to the fur-
“ face of the earth, these roots have not thrown
“ out a single fibre, but are now united into a
“ pretty thick hard root.”*

The regular movements by which the sun-
flower presents its splendid disk to the sun, have
been known to naturalists, and celebrated by
poets both of ancient and modern times. Ovid
founds upon it a beautiful story; and Thomson
describes it as an attachment of love to the celest-
tial luminary.

“ But one, the lofty follower of the sun,
“ Sad when he sets; shuts up her yellow leaves,
“ Drooping all night; and when he warm returns,
“ Points her enamour'd bosom to his ray.”

Summer, line 216.

IV. Nature has wisely proportioned the
powers of motion to the diversified necessities of
the beings endued with them. Corallines and
Seapens are fixed to a spot, because all their
wants may be there supplied. The oyster, du-
ring the afflux of the tide, opens to admit the
water, lying with the hollow shell downwards:
but when the ebb commences, it turns on the
other side; thus providing by an inconsiderable
movement, for the reception of its proper nutri-
ment; and afterwards discharging what is super-
fluous †. Mr. Miller, in his late account of the

L 5

island

* Gentleman Farmer.

† Sprat's History of the Royal Society.

island of Sumatra, mentions a species of coral which the inhabitants have mistaken for a plant, and have denominated it Lalan—Cout, or sea-grafs. It is found in shallow bays, where it appears like a straight stick, but when touched, withdraws itself into the sand†. Now, if self-moving faculties, like these, indicate animality, can such a distinction be denied to vegetables, possessed of them in an equal or superior degree? The water-lily, be the pond deep or shallow in which it grows, pushes up its flower-stems, till they reach the open air, that the farina fecundans may perform without injury its proper office. About seven in the morning the stalk erects itself, and the flowers rise above the surface of the water. In this state they continue till four in the afternoon, when the stalk becomes relaxed, and the flowers sink and close. The motions of the sensitive plant have been long noticed with admiration, as exhibiting the most obvious signs of perceptivity. And if we admit such motions as criteria of a like power, in other beings, to attribute them, in this instance, to mere mechanism, actuated solely by external impulse, is to deviate from the soundest rule of philosophizing, which directs us not to multiply causes, when the effects appear to be the same. Neither will the laws of electricity better solve the phenomena of this animated vegetable: for its leaves are equally affected by the contact of electric, and non-electric bodies; shew no change in their sensibility, whether the atmosphere be dry or moist; and instantly close when the vapour of volatile alkali, or the fumes
of

† Philosoph. Transact. vol. LXVIII. p. 178.

of burning sulphur are applied to them. The powers of chemical stimuli, to produce contractions in the fibres of this plant, may perhaps lead some philosophers to refer them to the *vis insita*, or irritability, which they assign to certain parts of organized matter, totally distinct from, and independent of, any sentient energy. But the hypothesis is evidently a solecism, and refutes itself. For the presence of irritability can only be proved by the experience of irritations, and the idea of irritation involves in it that of feeling.

But there is a species of the order of Decandria, which constantly and uniformly exerts a self-moving power, uninfluenced either by chemical stimuli, or by any external impulse whatsoever. This curious shrub, which was unknown to Linnæus, is a native of the East Indies, but has been cultivated in several botanical gardens here. I had an opportunity of examining it in the collection of the late Dr. Brown. It is trifolious, grows to the height of four feet, and produces in autumn yellow flowers. The lateral leaves are smaller than those at the extremity of the stalk; and all day long they are continually moving either upwards, downwards, or in the segment of a circle. The last motion is performed by the twisting of the foot-stalks; and whilst one leaf is rising, its associate is generally descending. The motion downwards is quicker and more irregular than the motion upwards, which is steady and uniform. These movements are observable, during the space of twenty-four hours, in the leaves of a branch lopped off from the shrub, and kept in water. If from any obstacle the motion be retarded,
upon

upon the removal of that obstacle, it is resumed with a greater degree of velocity *. I cannot better comment on this wonderful degree of vegetable animation, than in the words of Cicero. *Inanimatum est omne quod pulsu agitur externo; quod autem est animal, id motu cietur interiore et suo.*

I have thus attempted, with the brevity prescribed by the laws of this Society, to extend our views of animated nature; to gratify the mind with the contemplation of multiplied accessions to the general aggregate of felicity; and to exalt our conceptions of the wisdom, power, and beneficence of God. In an undertaking, never yet accomplished, disappointment can be no disgrace. In one directed to such noble objects, the motives are a justification, independently of success. Truth indeed obliges me to acknowledge, that I review my speculations with much diffidence; and that I dare not presume to expect they will produce any permanent conviction in others, because I experience an instability of opinion in myself. For to use the language of Tully, *Nescio quomodo, dum lego assentior; cum posui librum, assensus omnis illa elabitur.*—But this scepticism is perhaps to be ascribed to the influence of habitual preconceptions, rather than to a deficiency of reasonable proof. For besides the various arguments which have been advanced, in favour of vegetable perceptivity, it may be further urged that the hypothesis recommends itself, by its consonance to those higher analogies of nature, which lead us to conclude that the greatest possible sum of happiness

† See Encyclopædia Britannica, Art. Hedyсарum.

happiness exists in the universe. The bottom of the ocean is overspread with plants, of the most luxuriant magnitude. Immense regions of the earth are covered with perennial forests. Nor are the Alpes, or the Andes; destitute of herbage, though buried in depths of snow. And can it be imagined that such profusion of life subsists without the least sensation or enjoyment? Let us rather, with humble reverence, suppose that vegetables participate, in some low degree, of the common allotment of vitality. And that our great Creator hath apportioned good to all living things, in number, weight, and measure."^{*}

Supplement to the foregoing Paper; containing further Observations on the Sensitive Plant.

IN the speculations, concerning the perceptive power of vegetables, which were read before this Society last spring, I observed that the motions

* It has been estimated that our globe contains 20,000 species of vegetables; 3000 of worms; 12,000 of insects; 200 of amphibious animals; 2600 of fishes; 550 of birds; and 200 of quadrupedes. (Vid. Linn. Amoenit. Academ. and Stillingfleet's Miscellaneous Tracts, p. 125). A calculation like this, it is evident, must be very defective; because founded on past discoveries in a science, which is now in a state of rapid progression. But future accessions, both of plants and animals, with respect to number, may produce no material changes in their relative proportions.

tions of the sensitive plant are not to be explained by the laws of electricity. For its leaves are alike affected by the contact of electric and non-electric bodies; shew the same sensibility whether the atmosphere be dry or moist; and instantly close when certain chemical stimuli, such as the vapour of vol. alkali or the fumes of burning sulphur, are applied to them. These conclusions were founded on the recollection of experiments which I made more than twenty years ago. But the Abbè Barthalon de St. Lazane, in a late treatise on the electricity of vegetables has adopted an opposite hypothesis, and adduced the following trials in support of it. When the sensitive plant, says he, is touched with a piece of polished metal, terminated at each end by a round knob, its leaves shrink back and shut. When it is touched with a piece of glass of the same form, it remains insensible. But if this piece of glass be electrified, and the plant be touched with it in this state, the leaves instantly close themselves. Hence he infers, that the plants called *Mimosa* are endued with a much greater portion of electrical fluid than others; that this fluid escapes when touched by a foreign body, capable of conveying it away; and that they shrink by being thus deprived of what is essential to their health and vigour*.

I have lately procured a sensitive plant, with the design of repeating the Abbè's experiments.

But

* See Abbè Barthalon de St. Lazane *D'Electricité des Vegetaux*: also Appendix to Monthly Review, vol. XVII. p. 135.

But at the present season of the year, I find this vegetable in a very languid state; so that my trials have not afforded me much satisfaction. I could not, however, perceive any difference whether the leaves were touched with a piece of polished iron or a stick of sealing-wax. And the following well authenticated facts seem to refute the Abbè's hypothesis, concerning the electrical œconomy of this plant.

I. The branches of the sensitive plant have two motions, the one natural, the other artificial. By the first it progressively increases, in the morning, the angle which it forms with the stem; and retreats in the same gradual manner, in the afternoon. By the second it contracts its leaves, when forcibly touched or shaken.

II. The sensibility of the plant seems chiefly to reside in the articulation of the branches of the common foot-stalk, or of the particular foot-stalk of each wing.

III. No motion ensues from cautiously piercing the branch with a needle, or other sharp instrument.

IV. A stroke or an irritation produces a more forcible effect, than an incision or even an entire section.

V. A slight irritation only acts upon the neighbouring parts, and extends its influence according to its force.

VI. Plunging the plant in water seems to have no other effect than that of diminishing its vigour.

VII. A piece of wax, strongly electrified, made the leaves of the sensitive plant close quickly, by attracting them to it with considerable force.

VIII. The

VIII. The motions of the sensitive plant are owing to a strong contraction. Each foot-stalk seems to be terminated with a kind of joint, on which the leaves turn, with surprising facility*.

* Consult Milnes's Botanical Dictionary; the Encyclopædia Britannica; and Whytt on Vital Motions.

*An Essay on Crimes and Punishments. By the
Rev. William Turner.*

[*From Memoirs of the Literary and Philosophical
Society of Manchester.*]

FROM the original imperfection of Human Nature in general, and the different opportunities and talents of individual men, imperfect and different judgments will necessarily arise, some of which, at least, must consequently be errors. These will lead to the formation of different dispositions and habits; of which, those founded on right reason, and a proper judgment of things, must be good, while those founded on error, and a perverted judgment of things, must, in that proportion, be depraved. These different dispositions will lead to correspondent actions, which will be good or bad likewise; and, as far as they are the one or the other, will be proportionably useful or detrimental to the authors of them, and to the society of which they are members.

Since, then, our errors may produce so important effects to ourselves, and those with whom we are concerned, it is of the greatest consequence that we should early correct all such as may lead to hurtful actions. This will be best effected, by considering attentively our various relations with respect to other beings, the advantages we derive from such relations, and the duties

duties incumbent upon us in consequence of them.

Now we shall find, that when man was first created, he was placed in a world so constituted, as that, by the practice of certain personal and relative duties, he might best promote his own happiness, and that of his fellow-creatures. He was thus made subject to a moral law, engraven, as it were, upon his mind, for the due observance of which he was left accountable to his Almighty Creator. But in process of time, as mankind multiplied upon the earth, and violations of this original rule of action increased continually in frequency and enormity, it became necessary for men to unite together, in distinct and separate bodies, for mutual protection and defence: and hence would arise the first forms of civil society.

Thus we find, that the human race are subject and accountable to a moral and a political law. At the head of the one, is the great Creator of all things, as the supreme eternal Legislator and Executor. At the head of the other, are certain civil governors, who are appointed to discharge these important offices in those temporary societies, into which men enter during their continuance in this world.

Each of these constitutions of government is attended with many advantages, the one promoting our moral, the other our political happiness.

With respect to the former, however, the eternal laws of moral obligation, with the different degrees of moral enormity, are so deeply engraven on the human mind by nature, and so forcibly republished in the books of revelation, that they seem not so much the objects of speculative disquisition:

quisition: every good man is sensible of their obligation, and of the proper restrictions with which they are to be taken. But an attention to the rules by which actions are estimated in a political view, is highly necessary for all men, whatever be their moral character; since otherwise, they may be misled by the idea, that the same general rules obtain both in the divine and human governments, under the political as well as the moral constitution; so that, if they be careful to keep within the bounds of strict morality, they can never become amenable to the laws of civil society *. This, however, is, doubtless, an error, as will appear from the former part of the following essay, the proposed object of which is,

First, To point out the difference between moral and political transgressions, with their respective punishments: so far, at least, as may enable us to form some idea of the rules which the legislator should observe, in his attempts to correct the disorders of society: And,

Secondly, To offer some remarks on the proportion of punishments to offences; and to enquire into the right, utility, and success, of severe civil institutions, particularly of capital punishments.

As we have divided transgressions, so we may distinguish punishments, into moral and political, and with respect to each of these may consider, the end, the subjects, the nature, and the measure, of punishments.

I. The end of all punishment seems to be the same, viz. the prevention of future crimes; which is effected, either by reforming or tying up the hands

* Compare Judge Forster's preface to his Reports, quoted in the last page of this essay.

hands of the offender himself, or by deterring others from the imitation of his example. This is the only ground upon which punishment can well be justified; for barely causing the offender to suffer, without producing any further effect, besides that it is no proper satisfaction, seems to imply too much of a spirit of revenge or malice; which we cannot, without blasphemy, suppose to actuate the Divine Being, and which is disclaimed by every earthly Judicature.

II. But in the subjects of punishment we shall find a much greater disagreement; and indeed the purposes of moral and political government are so different, that we may naturally expect it. The purpose of the former is, to train up rational beings to the highest moral perfection; moral actions, therefore, alone, must be subject to its laws, which are calculated to obtain their end, by holding out rewards for actions proceeding from a good principle, and punishments for those which arise from a bad one. The purpose of human governments, on the other hand, is merely the preservation of its various advantages to the several individuals of the state; and therefore, those actions which tend to interrupt the enjoyment of these advantages, by disturbing the peace and good order of society, are the only subjects of human laws.

This distinction also necessarily arises from the different powers of the judges, as well as from the different ends of the institutions. For since all things are open to the Deity, so that he can discover not only the actions, but even the most secret thoughts of men, he is a proper judge with respect to the spring or principle of any action. But since the wisest human legislator

flator cannot undertake to determine, with certainty, the motives which have led to the performance of any action, he must not pretend to punish according to their moral enormity; but he is an adequate judge of the political benefit or harm to be expected from any particular action, or general course of conduct; and may therefore justly restrain and punish all such as he is convinced are inconsistent with the peace of that society over which he presides, without enquiring whether they proceed from a good or bad moral principle. The infatuated murderer of the Duke of Buckingham was probably influenced by the best motives to the commission of such an offence; but whether this was actually the case or not, nay, though the magistrate had been fully persuaded that it was, he would not therefore have been justified in acquitting him, since he would by that means have afforded an opportunity for every murderer (nay indeed for any offender) to plead the same excuse; which, as no plea of this kind can with certainty be contradicted, would make way for the introduction of every kind of licentiousness, and quickly bring on the total overthrow of civil society. He was therefore obliged, whatever his private opinion might be, to punish the delinquent as guilty of an offence against the laws of his country; and as for the rest, must content himself with the reflection, that it is in the power of the Divine Being hereafter to ratify or revoke his sentence; to reward Felton, as a lover of his country; or to recompense Villiers, for the misfortune he suffered as the devoted victim of blind party-rage.

We

We may from hence infer, by the way, that the opinions of men cannot, with propriety, come under civil jurisdiction; every man being accountable, in this respect, to his moral governors only, his conscience and his God. It is time enough for the civil magistrate to interpose, when opinions manifest themselves in the conduct * of those who profess them; and then, if the actions they occasion are hurtful to society, he has a right to restrain them, without troubling himself to enquire (because he cannot determine) whether the principles which gave rise to them are true or false.

We may also remark, in a cursory manner, that this view of human punishments furnishes a strong presumptive evidence in favour of the doctrine of a future retribution, in which, all the apparent injustice of more imperfect courts will be rectified, and a society be established, whose interests will be more closely connected with the strictest principles of virtue. And though we should allow, to those who contend for it, that the natural arguments for a future state are not sufficient of themselves to afford full conviction of its certainty, yet when, since the promulgation of Christianity, we are convinced of it by another kind of evidence, it is not surely, degrading Divine Revelation, to shew that its doctrines are consistent with right reason; since both are the gift of the same Almighty Being, from whom contradictions cannot arise.

III. We are now come to the nature of punishment. Concerning the nature of those punishments which will be inflicted by the Deity in consequence of immoral actions, it is impossible for

* Pudsey-Ordination-Service, Q III. p. 60.

for us to determine, in what they differ from human punishments, and how far they extend. Only we may conjecture, that, as the moral government of the Deity is of a spiritual or mental nature, the punishments also will probably be mental; and may possibly exist as long as their subject, the mind. Human governments, on the other hand, being entirely of a temporary nature, the punishments they provide must be temporary also; such as may either produce an amendment in the offender himself, by laying before him such motives as may be sufficient to deter him from a repetition of his crime, or place him in such a situation, as shall take away from him all opportunity of doing further mischief. The first of these classes comprehends fines, corporal punishments, imprisonment for a limited time, and temporary banishment; the second class includes perpetual imprisonment, or exile, and death.

It is obvious that these sanctions carry with them different degrees of severity: which leads us to enquire into

IV. The rule or measure of punishment.

The general rule of all punishments is, that the severity be proportioned to the enormity of the crime. But the difference between ethical and political virtue (if such an expression may be allowed) is no where more apparent, than in this article. The term enormity, when applied to crimes committed against the laws of morality, signifies the moral depravity of the action, which is diminished by any temptations there may be to commit it; since, as it requires greater fortitude to refrain from the commission of a crime, when it is recommended by numberless temptations, so these furnish an apology for the person, who

who has been so unfortunate as to yield them. The frequency of the crime, particularly, operating as a temptation, furnishes an especial excuse for its commission. And in like manner, all other circumstances, which may tend to induce a man to commit any given offence, act like negative quantities in arithmetic, tending to diminish the sum of enormity, and consequently to lessen the punishment.

But when any actions are considered as offences against human laws, the term enormity is not used in a moral sense, but signifies the degree of detriment any particular action may occasion to the state. And, by this rule, actions, in themselves of little or no moral turpitude, may be punished with the greatest severity, as is frequently the case with the crime of high treason; while, on the other hand, the vilest and most complicated acts of villainy, may, through a necessary defect of foresight in the legislator, not only pass unpunished, but even, in some cases be rewarded. I am enabled to produce a case, which will greatly illustrate what has been said; it comes from an authority, which will readily be acknowledged to be unquestionable.* In one of the midland counties of England, not many years ago, an unnatural son hired a bravo to murder his father. In consequence of the old man's death, a proclamation was issued out, offering a reward to any one who would discover the offender, and a pardon to any accomplice who was not the immediate murderer. The son informed
against

* Dr. Aikin (a man never to be mentioned by his pupils but with gratitude and veneration) produced this instance in his *Ethical Lectures*, as a case which happened in *Leicestershire*, during his residence at *Kibworth*.

against the person whom he himself had hired, and, upon his conviction and execution, claimed and obtained the pardon and the reward. Now we cannot, if we wished it, conceive a more glaring instance of moral depravity; and yet, by human laws properly constituted, this most atrocious of all persons was not only indemnified, but rewarded, for that action, in which his villainy was most eminently apparent.

In this view of the term, the *frequency* of any crime increases, instead of lessening, its enormity. For all crimes being hurtful to the state, their frequent commission ought to be carefully prevented, and the increase of them is an alarming symptom of political decline. When, therefore, any crime is often repeated, its punishment must increase accordingly, in order to counterbalance the additional temptation, which its general commission might otherwise occasion. Thus in the year 1748, his late Majesty issued a proclamation, setting forth, that in consequence of the great frequency of high-way and street-robberies, he would pardon no person convicted of this crime for the space of a year to come; which was, in effect, an increase of punishment, as it took away the chance of escaping*.

For the same reason, all other temptations to the commission of crimes, are to be counterbalanced by such additional punishments, as may furnish sufficient motives to refrain from them. Among these temptations, *difficulty of detection* is one of the most powerful, and is on that
M account

* A similar measure was pursued, in the year 1783, with respect to robberies attended with murder, or cruel usage.

account most generally and strictly guarded against. Thus, in cloathing countries, to cut off, and take away a *part* of a piece from the tenter-hooks is a *capital* offence; but to steal the *whole* piece only subjects the delinquent to the punishment of *transportation*. The reason of this is, that if the whole piece be taken, it may easily be known by the marks of the maker, but if the piece be cut, the marks are lost, and the theft cannot be so easily discovered. And this principle was formerly carried so far in the Isle of Man, as Judge Blackstone informs us, * that “stealing a horse or a cow was only prosecuted as a trespass, on account of the difficulty of conveying them out of the island, or of secreting them in that small territory; while stealing a pig or a fowl was made a capital crime, as so small an animal might easily be devoured or concealed.” This last instance is adduced, only to shew how far a principle which is good, when moderately applied, may be stretched into absurd severity.

Thus we see, that whereas the frequency of any crime, and the other temptations to its commission, *lessen* its moral enormity, and consequently diminish its punishment; these circumstances, on the other hand, *increase* the *political* enormity of an offence, and consequently increase the punishment also.

At the same time, it must be acknowledged, to be a very difficult part of the province of the human law-giver, so to *proportion punishments* to *offences*, as to keep clear, on the one hand, of the inconveniencies, of too *lax* a sanction to the laws, and to avoid, on the other, the evils of too *severe*

* Comm. Book IV. C. 1.

severe a one.—In order to do this with exactness, it is requisite that there be previously obtained a full and perfect scale* of offences, classed according to their *political enormity*, † which perhaps is impossible; and we must afterwards be able to apply the several kinds of punishment which it is in the power of the civil magistrate to inflict, ‡ in a due proportion to the *degrees* of enormity marked down in the scale. He who approaches nearest to this ideal perfection, is the wisest and most perfect legislator: he who falls short of it, must, in that degree, labour under great disadvantages.

For if the *evil consequences* of the punishment he appoints be less than the *probable advantages* of the crime it is meant to restrain, it will, in effect, be worse than no punishment at all; for then, what is gained by the crime, is gained not only securely, but *legally*. The article of smuggling will afford us a striking example. The *political enormity* of this offence seems not to have been sufficiently attended to. || It ought to be remembered, that other offences, without the exception even of murder, *immediately* affect *individuals* only; whereas, in this case, an immediate, open, and violent attack is made upon the property of the whole community, by endeavouring to defraud the state of those duties which make a part of its just revenues. One should therefore expect, that even the severest punishment would be provided against a crime of this nature: whereas we find, that all the ill

M 2 consequence

* Beccaria, C. VI.

† See above, I. 4.

‡ See above, I. 3.

|| Except by Dr. Franklin. See his admirable paper on smuggling in his Miscellaneous Pieces.

consequence that generally arises to the offender, is the seizure of those goods, the duty upon which he thus illegally avoids the payment of *; and, in some cases, a small pecuniary fine. Now if it be a chance of six, or ten to one, that such a seizure will not be made, is this sufficient to *deter*, nay is it not enough to *encourage* the smuggler to persist in, a practice so highly detrimental to society?

If, on the contrary, the punishment be too severe, as is the case, at least, whenever it is more than adequate to the prevention of the crime, the following pernicious consequences must necessarily ensue.

1. As human punishments cannot rise beyond a certain height, if the severer ones begin to be inflicted too low in the scale of offences, the highest punishments will be brought into use long before we reach the highest offence; the necessary consequence of which must be, that crimes of different degrees of enormity will be punished equally.

* This Judge Blackstone asserts (I. p. 317.) is the only natural and reasonable punishment for smuggling; but at the same time laments its inefficacy, and the necessity of greater severity, in order to the restraint of a crime, "which," says he, is no natural, but merely a positive offence." But if this were a sufficient reason for lenity in the case of *smuggling*, it would be so likewise for *high-treason*. This admirable writer seems not to have attended to the distinction between moral and political enormity.

If it be objected, that all forcible acts of smuggling, resistance to custom-house officers, &c. are declared by 19th Geo. II. C. 34. to be *felony*, it may be replied, that other crimes are here involved with smuggling; of which *shooting at*, or *murdering*, any one, is felony by itself; and resistance to the officers appointed to execute the laws, is a kind of treason. So that it is not smuggling, but *murder* and *treason*, that are punished by this statute.

equally. From hence it will as necessarily follow, that such crimes will be looked upon as indifferent with respect to each other. Habitual offenders are accustomed to estimate crimes by their consequences, and not by their moral turpitude: whenever, therefore, the civil magistrate makes no difference between the *punishment*, they will be apt to make as little difference between the *commission*, of one, two, or more of them; according as it may suit their present convenience, or occasion less danger of detection.* Thus, if both robbery and murder are punished equally, the highwayman will naturally argue with himself thus: "I shall be liable to the same punishment whether I rob this man, or whether I rob and murder him too; but if I rob him only, I leave an informer, who will endeavour to bring me to justice; my safest way, therefore, is to put an end to him at once, and so place an effectual bar to all information, at least from that quarter." This is the reason which Judge Blackstone assigns, though there may probably be others, why in France they seldom rob but they murder also; whereas in China, where murderers only are cut to pieces, they often rob, but never murder.† And he at the same time answers the question "why does not this principle operate in England, as well as in other countries?" by shewing, that though the same punishment is provided both for robbery and murder, yet the rob-

M 3

ber

* Can there be a better reason given, why footpads more frequently accompany their depredations with cruelty than highwaymen on horseback, than that, as they are more easily pursued, it is their business to render the sufferers incapable of pursuit.

† Comm. B. IV. C. 1. p. 18.

ber has many chances of escaping, while the murderer is almost sure of having his sentence strictly executed: besides that a difference is made, both in the expedition and solemnity of the execution, and in the subsequent disposal of the body.

2. Again, if the same punishment must serve for different crimes, and the highest punishment is an adequate satisfaction for the highest crime, for many crimes it must be *more* than a satisfaction, and therefore worse, that is, more detrimental to society, than the crime itself. The laws of Draco, we are told, were made on a different principle: he conceived that the least offences merited death, and he could find no greater punishment for the highest. But however those divines may determine on this subject, who contend, *that every sin, being an offence against an infinite being, is deserving of an infinite and eternal punishment*,* yet certainly no politician will admit this law-giver's principle. And we need not wonder that his dreadful code, emphatically, but properly said to have been written in blood, was not suffered to continue long in force.

But this evil is of still greater consequence, as it leads to another of much more fatal tendency. For,

3. The too great severity of punishments hinders the execution of the laws, especially of those which have for their object crimes of a less atrocious nature. In this case, † either the party injured is induced to neglect a prosecution, rather than

* Is it not at least as plausible to say, that every sin, being the action of a *finite* being, may be corrected by, and therefore is only deserving of, a finite and temporary punishment?

† Blackstone, B. IV. C. 1. p. 19.

than cause the delinquents to be so heavily punished; or, if he brought to a trial, the jury are led to violate their oath, and perjure themselves to procure his acquittal; and if all this is not sufficient to save him, the judge contrives to avail himself of some palliative circumstance which may justify a respite; so that it is a pretty certain fact, that of all the criminals convicted in England upon capital indictments, scarcely one in three really suffers the punishment appointed by the laws*. Now it is wisely observed by one who well understood human nature†, and the observation is confirmed by constant experience, that crimes are more effectually prevented by the certainty, than by the severity, of their punishment. For ‡ every offender, when he reflects upon the very small proportion of convicts that really suffer for their offences, naturally encourages himself with the reflection, “Why should not I escape as well as others?”—And if, contrary to his own expectations, and to general probability, the punishment should, in the end, fall upon him, he does not so much consider it as the just recompence of his crimes, as lament his misfortune,

M 4

* See the *table of executions* at the end of Howard on Prisons.

† Beccaria, C. VII.

‡ Blackstone has expressed this sentiment so much better, that I cannot resist the temptation to copy his words:

“Among so many chances of escaping, the needy and hardened offender overlooks the multitude that suffer; he boldly engages in some desperate attempt, to relieve his wants or supply his vices; and if, unexpectedly, the hand of justice overtakes him, he deems himself peculiarly unfortunate, in falling at last a sacrifice to those laws, which long impunity has taught him to contemn.”

tune, in being marked out as the victim of an unjust and unreasonably severe institution.

Further, the severity of punishment retards its execution, even in the case of those who actually suffer.

Nulla unquam de morte hominis cunctatio longa est,

is a wise sentiment of the poet *, which may be extended to all severe institutions, and ought to have its due influence, as long as they continue in force: though, if it were merely on this account, all such institutions stand greatly in need of a reform. For the minds of the common people cannot easily, at such a distance of time, connect the punishment with the action that has occasioned it, and are tempted to consider an execution, when it takes place long after the offence committed by the sufferer, rather in the light of a cruel and terrible exhibition, than as the just consequence of a particular violation of the laws of society †.

These observations are intended to have a particular reference to capital punishments, which, however defended by some politicians, appear to have been opposed of late by all the most respectable writers on government ‡; and indeed are certainly in most cases, if not universally, absurd and impolitic.

Every wise and benevolent man will consider with himself, that as life is a blessing which he cannot give, so it behoves him carefully to examine his right to take it away. He will consider, that

* Juvenal.

† Blackstone, B. IV. C. 31. Vol. IV. p. 397.

‡ Sir Thomas More, Grotius, La Coke, Beccaria, Montesquieu, Blackstone, Voltaire.

that when mankind entered into society, they only gave up such a portion of their natural liberty, and submitted to only such a measure of restraint, as was essentially necessary to secure to its members the advantages of society; and, therefore, that if this important end can be answered without having recourse to the punishment of death, there is no right belonging to the magistrate of inflicting such a punishment*. Now that, so far from being necessary to answer this end, capital punishments are exceedingly impolitic, and, as far as they operate, tend frequently to prevent it, the observations already made on severe punishments in general might be sufficient to shew.

But to these we may add, further, that the use of capital punishments argues a want of capacity in the legislator. It is rather an expedient to get rid of certain inconveniencies in society, than an attempt to remedy them. It is easy enough, indeed for the magistrate to extirpate mankind, but it is his business to amend them, and make them happy. "It is quackery in government," says Blackstone, "to apply too frequently the same universal remedy, the *ultimum supplicium*:" and that magistrate must be esteemed both a

M 5

"weak

* This seems to be a better argument than the excellent Marq. Beccaria's upon the subject, viz, "that no man has a right to take away his own life in a state of nature, and therefore cannot give up any such right to the magistrate." (And Considerations on Crim. Law. p. 186.) For, admitting that no man has such a right, it must be observed, that his *right over himself*, in a state of nature, is not what he gives up, but his *right over others*, when he enters into society. And it will bear a dispute, whether a man, entirely free from control, has not a right to estimate his loss by an injury, at what value he pleases.

“ weak and a cruel surgeon, who cuts off every
 “ limb, which through ignorance or indolence,
 “ he will not attempt to cure *.”

The idea of capital punishments would naturally suggest itself in the infancy of a state. When any one had committed an offence, and disturbed the peace of society, the question would then first arise “ How shall we prevent these things?” And the answer most likely to occur to a set of barbarians would be, “ Extirpate the offender, “ and give yourselves no farther trouble about “ him †.” But, as civilization increased, it would soon be found a wiser method, to provide such expedients as might effectually induce the offender himself not to repeat his offence, deter others from its future commission, and, at the same time, preserve an useful member to society. And though I will not undertake to determine universally, that in proportion as political governments have advanced towards perfection, substitutes for capital punishments have been more frequently introduced ‡; yet I think it may be asserted

* Blackstone, B. IV. C. 1. p. 17, 18.

† So the Hottentots have no fixed laws to direct them in the distribution of justice, and consequently when any offence has been committed, there is no form of trial, or proportion of punishments to offences; but the *Kraal* (village) is called together, the delinquent is placed in the midst, and without further ceremony, demolished with their clubs, the chief striking the first blow.

‡ Feudal times will furnish us with a striking exception. Every one will acknowledge the imperfection of this form of government; and yet, under it, almost all crimes were restrained (or more properly *licensed*) by pecuniary mulcts: and few capital punishments were in use, except, most absurdly, for breaches of the forest law. The legislators of those days seem injudiciously to have followed, in regulat-
 ing

ed with perfect safety, that government will never arrive at the perfection of which it is capable, till some very essential reform is obtained in our treatment of criminals.

And as frequent capital punishment is an argument of the want of a regular police, and a relique of barbarism in the constitution of any society, so its being still obstinately continued in use among us, tends to retain among the common people those barbarous manners, from which this kind of punishment originally took its rise, and to check the progress of that humanity of spirit, which, happily for mankind, has of late been making such rapid advances in our part of the world. Let then the spirit of our punishments correspond with the spirit of the times, in order that we may sooner attain that perfection of universal charity, which ought to be the governing principle of the human mind.

Indeed the advocates for capital punishments seem now in general to be aware of the weakness of their ground, and at present seldom attempt to

maintain

ing the society of which they were properly the governors, the example of that cotemporary hierarchy, which succeeded in its attempts to persuade mankind, that it could control the distribution of punishments under a constitution of government, of which its chief directors were likely to be ranked among the most unworthy members. As these held forth a regular bill of indemnity for sin, with prices proportioned to their enormity; so those published a similar list of prices for licence to commit crimes: and whereas, *spiritually*, you might blaspheme against the Almighty for a trifle; so, *politically*, for a stated price, you might purchase the life of the king. A curious constitution it must be confessed, where the *supreme magistrate* might be murdered with safety; but where it was death to shoot a partridge!

maintain it, except in cases of murder and high treason. Perhaps in the latter case it may, sometimes, be necessary; and in the former, scripture is brought in upon us, and requires, it is asserted, the rigorous infliction of death. Now with respect to the institutions of Moses, it is to be considered, that they were made for the regulation of a very peculiar people, for very particular purposes. Their whole civil constitution seems to have been admirably adapted to the progress then made in political advancement; but to have been at the same time so contrived, as to keep them where they were, till the opening of a more perfect dispensation. All, therefore, that we can fairly conclude from the instances of capital punishments, prescribed by the law of Moses, seems to be, that such punishments are not, in their own nature, absolutely and universally, unjustifiable; for the God of nature, we may be assured, would never contradict and overthrow the established laws of nature. But I can no more conceive that we are obliged, in this instance, to copy the Jewish code, than that we ought to have retained the law of retaliation*, or that we are wrong in not adopting the whole scheme, without alteration, reserve, or addition.

But the punishment of murder by death, it is said, does not appear to have deduced its origin or obligation from the law of Moses alone, but to have been required by the precept given to Noah and his posterity †, "Whoso sheddeth a man's blood, by man shall his blood be shed," and

* Ex. xxi. 24. Lev. xxiv. 20.

† Gen. ix. 6.

and consequently to be obligatory upon all the descendants of that patriarch. I hope I shall not offend any one, by taking the liberty to put my own sense upon this celebrated passage; and to enquire, why it should be deemed a precept at all. To me, I must confess, it appears to contain nothing more than a declaration of what will generally happen; and in this view, to stand upon exactly the same ground with such passages as the following *. “He that leadeth into captivity shall go into captivity!”—“He that taketh up the sword shall perish by the sword.” The form of expression is precisely the same in each of these texts; why then may they not be all interpreted in the same manner, and considered, not as commands, but as denunciations? And if so, the magistrate will be no more bound by the text in Genesis, to punish murder with death, than he will, by the text in the Revelations, to sell every Guinea captain to our West India planters. And yet, however just and proper such a proceeding might be, I suppose no one will assert, that the magistrate is bound to it by either that or any other text in the scriptures; or that that alone would be admitted, as a sufficient reason for so extraordinary a measure †.

But in considering the punishment of murder by death, upon the footing of political advantage, which alone has any thing to do with the question, may it not justly be asked, what natural reason can be given, why the loss of one mem-

ber
 * Rev. xv. 2. Matt. xxvi. 52.

† Let it also be observed, by those who will quote scripture upon the occasion, that when Cain murdered Abel, God only set a mark upon him, that is, rendered him infamous. This is a scripture precedent!

ber of society should necessarily be followed by the loss of another ! And, if none can be given, whether the present practice, on such occasions, is any thing more, than a barbarous expedient to get rid of a difficulty, than hastily cutting a knot, because a little dexterity is requisite to untie it?

It would surely better become a wise politician, to enquire, what are the springs which lead men to the commission of crimes; and so to suit his punishments to particular offences, as that they shall in their own nature tend to prevent them, and correct their evil influence; and not to inflict random punishments, merely to make the delinquent suffer.

Now it will not be difficult to shew, that the principal springs of evil actions are, pride, luxury, and idleness, assisted by the influence of bad examples. To correct the ill effects of these things, we at present confine our prisoners in a state of absolute indolence, in the company of the most detestable of their species, who encourage, instead of shaming them, with free access to the means of intemperance, the goaler being generally a publican, and after five or six months of this kind of discipline, we whip, banish, or hang them. In other words, we cherish, as much as we are able, those principles, and confirm, beyond the possibility of amendment, those habits, which are the foundations of all vicious conduct; and then inflict upon them a momentary punishment, which, if they survive, they return into society prepared by ourselves to become its most detestable members; and if their punishment be the conclusion of their present existence, we have been doing them an injury which we cannot repair, by contriving for the last months
of

of their lives such a course of conduct, as was sure to confirm their vicious principles and habits.

Is all this rational and wise? Does it manifest sound judgment, or good policy? Surely not. Right reason would suggest a very opposite proceeding. To counteract the effects of idleness and luxury, and prevent the influence of bad company, it would shew, that it was much more eligible to apply the punishments of shame, hard labour, * coarse diet, and solitary confinement; and these in different degrees, according to the different enormity of the offences committed, and in proportion as they have arisen from one or another of these causes.

Many advantages seem likely to arise from this mode of punishment. That the certain infliction of hard labour would have more influence upon the mind of the offender, than the present bare probability of death, may naturally be supposed, and indeed has been frequently experienced. And the duration of the punishment would make a much deeper impression upon spectators, than the instantaneous execution of a criminal, and would therefore tend to deter more effectually from the commission of crimes in future. In suffering this kind of punishment also, the offender is compelled, in some degree at least, to support himself by his own labour, as long as he remains under confinement; he will also form habits of temperance and industry, and thus be prepared for usefulness in the world, when the term of his punishment is elapsed. And that the reformation

of

* Diodorus Siculus tells us, that Sabaco, king of Egypt, changed capital punishments, with much success, into stated kinds of labour. Whose example Grotius recommends.

of the offender will be very much promoted by some portion of solitary confinement (affording him opportunities of reflection, breaking him from the society of his old companions, &c.) has been sufficiently shewn by the excellent Mr. Howard, in his State of the Prisons in Holland *.

But the best method, where it can be done, of amending our penal code, is to take away all occasion for its severe institutions, by preventing, as much as possible, the crimes they restrain from being committed; or in other words, by having recourse to such previous expedients †, as shall remove every prospect of advantage from their commission. Thus, while no other precautions were used to prevent the coining of gold, than the making it a capital crime, the offence grew every day more frequent; but, as soon as the late regulations respecting gold coin took place, which entirely preclude every prospect of advantage from this practice, the offence died away of itself; and we now scarcely ever (I believe I may say never) hear of a single offender in this respect.

These

* See particularly his story of the *stee-maker*, who always drank the health of his friends, the masters of the Rasp-house, for teaching him sobriety and industry.

† Laws which only take effect *à posteriori*, and propose the prevention of crimes by cutting off the delinquent, will never reform; whereas prudent provisions to correct the morals, and proper punishments to counteract the principles of criminality, will have sure and lasting effects. Without such provisions, we may be making perpetual alterations, but shall in vain expect any salutary effects; we shall resemble those patients who are always taking physic, but will not alter their bad diet, and intemperate modes of living.

Crim. Law, p. XIX.

These are the expedients which have hitherto been used in those countries, where attempts have been made to substitute other punishments in the room of capital ones, and otherwise to reform the penal institutions; and they have, I believe, been almost universally attended with success. The governments of China, Russia*, and Prussia, have been foremost in these experiments, while other, perhaps more perfect states, have not pursued this laudable measure so far as might have been expected. Even in England, this excellent work has not hitherto been entered upon with proper spirit. Our penal laws have too frequently been the work of a few, influenced by various improper passions, and not directed by that coolness which legislators ought always to possess. They have too often been made upon the spur of the occasion, as Lord Bacon expresses it, and when so made, their revival has been afterwards neglected†; or we should not, in the eighteenth century‡, have had reason to acknowledge with shame, that stealing a swan, ¹ breaking down a cherry tree, ² letting out the water of a fish pond, ³ being seen in the company of gypsies, ⁴ with upwards of a hundred and fifty other actions which a man is daily liable to commit, ⁵ are declared, by

* Grand instructions for forming a code for the Russian Empire. § 210.

† If Lord Ashburton really was engaged, as we were told, in the revival, amendment and digestion of our code of penal laws, his death is much to be lamented by every friend to humanity.

‡ Blackstone, vol. IV. p. 4.

¹ Dalt. Just. C. CLVI.

² 31st Geo. II. C. XLII.

³ 9th Geo. I. C. XXII.

⁴ 5th Eliz. C. XX.

⁵ Ruffhead's Index to Statutes.

by English Acts of Parliament, crimes worthy of instant death!

Is not this a fact at which Englishmen should blush? And ought not our legislators to undertake, without delay, the great but necessary work of reforming these sanguinary and impolitic statutes? Our country gloriously led the way in the abolition of torture; let us not be ashamed to follow the good example which others have set us in return, and still further humanize our civil institutions. We shall then have performed a work for which posterity will regard us with gratitude; and our age will then stand a chance of still acquiring the same reputation for humanity and public spirit, which it justly merits for the encouragement it affords to improvements in the arts and sciences.

To conclude: It has been the object of this discourse to prove,

That the end of all punishments is, not to torment a sensible being, but to prevent the future commission of crimes;

That those only can be deemed proper subjects of human punishments, who have been proved guilty of offences against the peace and good order of society;

That

After this, will not any one acknowledge that Judge Forster, in the preface to his *Crown Law*, recommends its study with singular propriety, as a matter of universal concernment? "For," says he, "no rank or elevation in life, no uprightness of heart, no prudence or circumspection of conduct, should tempt a man to conclude, that he may not, at some time or other, be deeply interested in it."

That the political enormity of offences, or that which fixes the proportion of their punishment, is to be estimated by the degree of detriment they occasion to the state;

That the nature of all punishments should be so suited to their respective offences, as that they shall naturally tend to prevent their future commission, by correcting the principles which gave rise to them;

That the magistrate has no right to inflict punishments unnecessarily severe;

That he ought to be very sparing (if he have recourse to them at all) in the use of capital punishments;

And that in every instance he ought to appoint only such sanctions to his laws, as shall be adequate, and no more than adequate, to prevent the crimes which are the object of them.

If, in the course of this slight Essay, any thing has been offered in the least degree worthy the attention of this respectable Society, and more especially, if it should be the means of furnishing agreeable and useful topics of debate, its end will be answered, and its author satisfied.

Mem. The rule, "That the measure of punishment shall be such as may be adequate to the prevention of the offence," must only be extended to such offences as it is in the magistrate's power to prevent without occasioning a greater evil than will arise from its permission. Judge Blackstone happily observes, "The damage done to our public roads by loaded waggons is universally acknowledged, and many laws have been made to prevent it, none of which have proved effectual." But it does not therefore follow that it would be just in the legislator to inflict death upon every obstinate carrier who defeats or eludes the provisions of former statutes. Vol. IV. p. 10.

On the Pursuits of Experimental Philosophy.
By Thomas Percival, M. D. F. R. S. and
S. A. &c.

[*From Memoirs of the Literary and Philosophical
Society of Manchester.*]

*Homo, naturæ minister et interpres, tantum facit intelligit,
quantum de naturæ ordine, re vel mente, observaverit;
nec amplius scit, aut potest.* Bacon, Nov. Organ. Aph. I.

THE very learned and ingenious author of *Hermes* * has stigmatized the pursuits of modern philosophy, by treating them as mere *experimental amusements*; and charging those who are engaged in such pursuits, with deeming nothing demonstration, that is not made ocular. Thus, instead of ascending from sense to intellect, the natural progress of all true learning, he observes, that the philosopher hurries into the midst of sense, where he wanders at random, lost in a labyrinth of infinite particulars. It would be easy to retaliate on this celebrated writer, by pointing out the futility of the syllogistic mode of philosophizing, instituted by his favourite Aristotle. I might also oppose to his authority that of Lord Verulam, the brightest luminary of science,

* See a Philosophical Enquiry concerning universal Grammar, by James Harris, Esq. p. 361.

science, who objects, in the strongest terms, against that reverence for speculations, purely intellectual, "by means whereof," as he expresses himself, "men have withdrawn too much from the contemplations of nature, and the observations of experience, and have tumbled up and down in their own reasons and conceits. Upon these intellectualists, who are notwithstanding commonly taken for the most sublime and divine philosophers, Heraclitus gave a just censure, saying, *men sought truth in their own little worlds, and not in the great and common world* *."

But, without depreciating metaphysics, a science which I have always studied with delight, and which invigorates the faculties of the mind, and gives precision and accuracy to our rational investigations by instructing us in the nicer discriminations of truth and falsehood, no doubt can be entertained of the high importance and dignity of natural knowledge. To this we owe the necessaries, the conveniencies, and all the gratifications of our being †; and in the pursuit of it the understanding is exercised and improved, and our moral affections are elevated to superior degrees of piety, towards the great Author of all that is fair and good in the creation. Nor is modern philosophy liable to the charges which have been thus contumeliously brought against it. For I trust it has been conducted

* Bacon on the Advancement of Learning, Book I. p. 20. 4to.

† *Scientia et potentia humana in idem coincidunt.* Bacon, Nov. Org. Aph. III.

ducted on the principles of genuine logic, by all its more distinguished professors, who have been sedulously careful first to establish sound premises, and then to deduce just conclusions.

The immortal Newton, from an appearance which we daily observe, the fall of bodies to the ground, ascended by patient investigation, and by a regular gradation of evidence, to the great law of gravity. And having ascertained this general principle, he extended it over the universe, explaining by it not only the phænomena of our globe, but the revolutions of the whole planetary system. By the successive adoption of the same analytic and synthetic mode of reasoning, he demonstrated his beautiful theory of light and colours. Numberless other subsequent discoveries have been conducted on the same scientific plan as might be evinced by references to the writings of our own and foreign philosophers.

Even the chemists have long since deserted their jargon and mysterious conceits; and they now carry on their researches in a perspicuous and rational manner. That unknown principle phlogiston, to which they referred so many operations of nature, explaining, as the logicians express it, *ignotum per ignotius*, has been lately proved to be no creature of the imagination; and may be exhibited to the senses under the form of inflammable air. Fire, subtile as it is in its activity, and universal in its energy, has been traced through all its modifications, measured by different standards, and reduced to known precise and permanent laws. It is therefore no just complaint, that intelligent principles are neglected, and that empiricism in physics

sics is honoured with exclusive encouragement. Yet in the prevailing rage for experiments, it cannot be unseasonable to caution the young adventurer, not to deem the microscope, the retort, or the air-pump unerring guides to truth; but to prosecute his researches into nature with a modest conviction of the fallacy of his senses, and the limited powers of his understanding. "You will wonder," says Mr. Boyle, in the preface to his essays, "that I should use so often *"perhaps, it seems; 'tis not improbable;* words which argue a diffidence of the truth of the opinions I incline to. But I have hitherto not unfrequently found, that what pleased me for a while, was soon after disgraced by some further or new experiment."

Mr. Bewley, an eminent chemist, not long since informed me, that he concluded the presence of the vitriolic acid to be unnecessary to produce the spontaneous accension of Homberg's pyrophorus, and delivered this opinion to the public, on the evidence of at least fifty different trials*. Yet with materials taken from the same bottle, the experiment afterwards failed nearly as often, though the minutest circumstances in the process were as much alike as attention could render them. Contrarieties, equally humiliating, have often occurred in my own philosophical pursuits. But the most instructive lesson of modesty and reserve, which I recollect in the course of my experience, is the one I shall now briefly recite.

The favourable influence of fixed air on vegetation I believed to have been ascertained by more

* See Priestley on Air, vol. III. Appendix, p. 395.

more than a hundred experiments which I made in the year 1775. Many of these experiments were repeated afterwards by Mr. Henry, Mr. Bew and others. But Dr. Priestley whose accuracy and fidelity are not less distinguished than his learning and ingenuity, has since drawn conclusions from the prosecution of this subject, which militate totally with mine. I resumed the enquiry, and engaged several of my friends in it. The result of all our trials was uniformly the same as before, viz. that fixed air, in a due proportion, is so favourable to vegetable growth, that it may justly be deemed a pabulum of plants. Dr. Priestley's subsequent experiments, however, were still contradictory to mine. And in one of his very very friendly letters to me, he thus expresses himself. "In all these cases, you
 " will say, I choak the plants with too great a
 " quantity of wholesome nourishment: and to
 " all yours I say you do not give them enough
 " of the noxious matter to kill them. Thus the
 " amicable controversy must rest between us;
 " and like all other combatants; we shall both
 " sing *Te Deum*." But I felt little disposition to exultation on such an occasion, and dropt the subject, conscious that though nature is always the same, we often view her under fallacious appearances. Time, however, and the researches of foreign philosophers have thrown new lights on this disputed point. And I am informed, by a letter from our common friend, Mr. Vaughan, that Dr. Priestley now admits the salubrity of fixed air to vegetable life. I shall copy the paragraph which contains the account. "Dr.
 " Priestley tells me of a very valuable book,
 " written by a person at Geneva, on vegetation;
 particularly

“ particularly as to the influence of light, which
“ he maintains to be a phlogisticating process,
“ acting on the resinous parts of plants only.
“ He also affirms to the satisfaction of Dr.
“ Priestley, that not only phlogiston is the
“ grand pabulum of plants, but that its predo-
“ minant form of reception is that of fixed air;
“ which, in a proper degree and place of appli-
“ cation, he shews to be salutary to all plants
“ whatever.”

Differences in the result of our enquiries, or in those of others, whilst they incite attention, and guard us against confidence and presumption, should neither diminish the veneration due to philosophy, nor repress our temperate ardour in the pursuit of truth. We should recollect that though the operations of nature are simple, uniform and regular, they are only discovered to be such, when fully unfolded to our understandings. And that when we endeavour to trace her laws, by artificial arrangements, combinations or decompositions, which is all that experiment can accomplish *, success may be sometimes frustrated by circumstances so minute, as to elude the most sagacious observation. From the history of electricity it appears, that the gentlemen first engaged in the culture of that science, ascribed opposite effects to the use of boiling water in the Leyden phial. M. Jallabert of Geneva, and others invariably found that the electric powers of the bottle were increased by the water; whereas Messrs. Kinnerley, Nollet, and Watson, experienced the reverse

N in

* Ad opera. nil aliud potest Homo, quam ut corpora naturalia admoveat, et amoveat; reliqua natura ipsa intus transigit. Bacon Nov. Organ.

in all their trials. It has since been shewn that the jarring decisions of those learned men, were owing to the difference in the action of boiling water on the several kinds of glass employed. Contradictory opinions are now held, by two very celebrated chemists, concerning the nature of steel; one asserting that its phlogiston is augmented, the other that it is diminished, in the process by which it is made. Both appeal to experiment in support of their opinions; and as the point in dispute is of importance to the arts, it merits a more complete and satisfactory investigation.

To these examples I shall add another, in which I have myself been particularly interested. The Rev. Dr. Hales, whose experimental enquiries were generally directed to the good of his fellow-creatures, discovered a lithontriptic power in certain fermenting mixtures. But he acknowledges the impracticability of injecting such mixtures into the bladder, with sufficient frequency, to dissolve the stone; and recites his experiments chiefly with a view to engage others in the same laudable and important pursuit. The subject however sunk into oblivion, and no further attempts of this kind were made, till the notice of the public was again excited towards the properties and uses of factitious air, by the writings of various learned and ingenious men. At this time (1774) Dr. Saunders, a physician in London, eminent for his knowledge of chemistry, renewed the experiments which Dr. Hales had begun, and found that the solvent power ascribed to the fermenting mixtures, resided only in the fixed air. Hearing some very imperfect accounts of this discovery, curiosity and humanity engaged me in the pursuit of it. I recollected

lected that Dr. Black and Mr. Cavendish had proved the solubility of various earthly bodies in water, either by abstracting from, or superadding to the fixed air which they contain. And as the human calculus is dissolved in the former way, by lime-water and the caustic alkali, it appeared to me highly probable, that the effect would be produced in the same substance, by the latter mode of operation. Analogy seemed favourable to the hypothesis, and a series of experiments which I made with great care, in the fullest manner confirmed it. Two years afterwards, Dr. Falconer engaged in the same enquiry; and the results of his trials exactly coincide with those which I have related. This united evidence has been also strengthened by the subsequent evidence of Dr. Priestley and Dr. Hulme. Yet decisive as it appears to be, a friend of mine, who is a very able and accurate experimenter, assures me that the calculi which he has tried, uniformly resist the action of mephitic water. And he further adds that not one of them has been found to contain a single grain of absorbent earth; but that all of them proved inflammable, like gall-stones. Dr. Heberden has also favoured me with similar information, respecting their analysis. On the other hand, I have fully shewn, that these substances vary in their structure and composition; that calcination converts some into quicklime; that others are consumed entirely in the fire; and that a third sort yield, after burning, an insipid residuum, incapable of giving any impregnation to water *.

N 2

What

* *Philosoph. Medic. and Experim. Essays*, vol. III. p. 161.

What then are we to infer from premises, apparently so inconsistent? Let us deduce from them these salutary lessons; that dogmatism is unbecoming a philosopher; that fallacy may attend our clearest views; and that unperceived diversities, in the subjects of our investigation, may render truth compatible with contrariety of evidence.

An eagerness to establish systems, and a fastidious disdain of perplexity, contradiction, or disappointment, are dispositions highly unfavourable to physical investigation. Lord Bacon has well observed, "that one, who begins with certainties shall end in doubts; but if he will be content to begin with doubts, he shall end in certainties*." The progress of science is usually slow and gradual; and in all ordinary cases, the *pace is not to the swift*, but to the steady, the patient, and the persevering. A man of lively parts and fertile imagination, generally engages in philosophical researches, with too much impetuosity; and if he be fortunate in the attainment of a few leading facts, he supplies all remaining deficiencies by conjecture and hypothesis. But should his career be obstructed by contradictory phenomena, he quits the study of nature with disgust; and concludes that all is uncertainty, because he has had the mortification to find himself mistaken. A scepticism like this, founded in pride and indolence, is equally subversive both of speculation and of action. We can apply to no branch of human learning, which is secure from illusion, or exempt from controversy; nor engage in any plan of life with undeviating judgment,

* Advancement of Learning. Book I. p. 20.

judgment, and uninterrupted success. So true is the sentiment of the Roman poet,

*Nunquam quisquam ita bene subducta ratione ad vitam fuit,
Quin res ætas, usus, semper aliquid apportet novi;
Aliquid admoneat: ut illa, quæ te scire credas, nescias,
Et quæ tibi putaris prima in experiundo repudies.*

TERENT.

But as disappointments in life often furnish the best lessons of wisdom, so those in philosophy may frequently be applied to the promotion of science. In experimental pursuits, which are not undertaken at random, but with consistent and rational views, we necessarily form a preconception of the induction to be established. If the trials succeed, in which we are engaged, our end is obtained, and, for the most part, we rest satisfied. But if the proofs fail, some unexpected phænomena often occur, which awaken our attention, suggest new analogies, and excite us perhaps to the investigation of other propositions of more importance than the antecedent ones. The very interesting and comprehensive discoveries of Dr. Black, concerning the nature of calcareous earths, and alkaline salts, in their different states of mildness and causticity, originated from an incident of this kind*. And many similar examples might be adduced from the records of philosophy. But whether such be the fortunate event or not, a negative truth may be of as much value as a positive one; and consequently success or disappointment may prove equally useful in experimental researches†.

N 3

To

* See *Essays Physical and Literary*.

† See the *Author's Essays Medical and Experimental*, vol. I. p. 106, edit. third.

To deduce the general characters of a body from one single property of it, individually considered, seems contrary to the rules of philosophizing. And the young experimenter should be cautious both of admitting and of forming such analogies. Yet they are sometimes so strong as to force conviction even against the evidence of sense, and of general opinion. The diamond was held by chemists in the time of Sir Isaac Newton, to be apyrous, and could not be suspected from any of its known qualities, to be of an inflammable nature. Yet this vigilant philosopher did not hesitate to consider it as an *unctuous coagulum*, solely from its possessing a very high degree of refractive power on the rays of light. For this power he found to depend chiefly, if not wholly, on the sulphureous parts of which bodies are composed. Late experiments have confirmed this opinion; and fully proved that diamonds consist almost entirely of pure phlogiston, since they are capable of being volatilized by heat in close vessels, of pervading the most solid porcelain crucibles, and of being converted into actual flame.

The accuracy of this inference is a striking proof of the importance of judicious and comprehensive analogies; and of the advantages resulting from the mode of reasoning by induction. For, to use the words of Sir Isaac Newton, "though the arguing from experiments and observations by induction, is no demonstration of general conclusions, yet it is the best way of arguing which the nature of things admits of; and may be looked upon as so much the stronger, by how much the induction is more general." This improved species of logic was first recommended and introduced into
physics,

physics, by Lord Verulam, who, at a very early period of life, saw the futility of Aristotle's syllogistic system, which proceeding on the superficial enumeration of a few particulars, rises at once to the establishment of universal propositions. *Due viae sunt, atque esse possunt, ad inquirendam et inveniendam veritatem. Altera a sensu et particularibus advolat ad axiomata maxime generalia, atque ex iis principiis, eorumque immota veritate judicat et invenit axiomata media; atque hæc via in usu est. Altera à sensu et particularibus excitat axiomata, ascendendo continenter et gradatim, ut ultimo loco perveniatur ad maximè generalia; quæ via vera est, sed intentata*.*

It is obvious that the force of this inductive method of reasoning must depend on the advancement which has been made in the different branches of physics. Indeed, it presupposes a store of particular facts, gradually accumulated, but sufficiently ample, and fit for reduction into their proper classes. Time and observation will be continually diminishing the number, and consequently enlarging the boundaries of these classes, by discovering other relations between them, and pointing out the connection of phænomena, deemed at first distinct and independent. But it must be remembered that every accession to knowledge renews the doubts and difficulties that result from ignorance; because it presents fresh objects to our investigation, and further desiderata to our wishes. It is this endless progression of science, which, by gratifying curiosity with perpetual novelty, and animating ambition with prospects of higher and higher attainments, sometimes gives the

N 4

attachment

* Bacon. Nov. Organ. Lib. I. Apor. 19.

attachment to it an ascendancy over every other principle, so as to render it the ruling passion of the mind. And as this passion does not, like the love of virtue, temper its particular exertions, by preserving a proper subordination in the powers, which it calls forth into action, the wildest extravagances of emotion and of conduct, have been indulged by those who submit to its uncontrolled dominion. A great philosopher has rushed naked from the bath into the streets of a populous city, frantic with joy on the solution of an interesting problem. But as I have expatiated in another Essay*, on the folly of such extravagant ardour in the pursuits of knowledge, I shall close these reflections with the following lines from Milton,

----- Apt the mind, or fancy, is to rove
 Unchecked, and of her roving is no end;
 Till warn'd, or by experience taught she learn,
 That not to know at large of things remote
 From use, obscure and subtle, but to know
 That which before us lies, in daily life,
 Is the prime wisdom; what is more is fume,
 Or emptiness, or fond impertinence,
 And renders us in things, that most concern,
 Unpractis'd, unprepar'd, and still to seek.

Par. Lost. Book VIII.

* On Inconsistency of Expectation in Literary Pursuits :
 Moral and Literary Dissertations, page 183.

A short Account of an Excursion through the Subterraneous Cavern at Paris. By Mr. Thomas White, Member of the Royal Medical Society of Edinburgh, &c. &c. in a Letter to his Father.

[From *Memoirs of the Literary and Philosophical Society of Manchester.*]

Paris, July 29, 1784.

I YESTERDAY visited a most extraordinary subterraneous Cavern, commonly called the Quarries. But before I give you the history of my expedition it will perhaps be necessary to say a few words concerning the *observatoire royal*, the place of descent in this very remarkable cavern. This edifice is situated in the Fauxbourg St. Jacques, in the highest part of the city. It takes its name from its use, and was built by Louis XIV. in 1667, after the design of Claude Perrault, Member of the Academy of Sciences, and first architect to his majesty. It serves for the residence of mathematicians, appointed by the king, to make observations, and improve astronomy. The mode of building it is ingenious, and admirably contrived, it being so well arched that neither wood nor iron are employed in its construction. All the stones have been well chosen, and placed with an uniformity and equality which contribute much to the beauty and solidity of the whole edifice. It is reckoned

to be about eighty or ninety feet in height, and at the top there is a beautiful platform, paved with flint stones, which commands an excellent view of Paris and its environs. In the different floors of this building there are a number of trap-doors placed perpendicularly over each other, and, when these are opened, the stars may be very clearly distinguished from the bottom of the cave at noon-day.

At this place I was introduced to one of the inspectors, (persons appointed by the king to superintend the workmen) by my friend Mr. Smeathman, who had used great application and interest for permission to inspect the quarry, and had been fortunate enough to obtain it. For as this cavern is extended under a great part of the city of Paris, and leaves it in some places almost entirely without support, the inspectors are very particular as to shewing it, and endeavour to keep it as secret as possible, lest, if it should get generally known, it might prove a source of uneasiness and alarm to the inhabitants above. For, what is very remarkable, notwithstanding the extent of this quarry, and the apparent danger many parts of the city are in from it, few, even of those who have constantly resided at Paris, are at all acquainted with it, and on my mentioning the expedition I was going to undertake to several of my Parisian friends, they ridiculed me upon it, and told me it was impossible there could be any such place.

About nine o'clock in the morning we assembled to the number of forty, and with each a wax candle in his hand, precisely at ten o'clock, descended by steps to the depth of three hundred

hundred and sixty feet perpendicular. We had likewise a number of guides with torches, which we found very useful; but, even with these assistants, we were several times under the necessity of halting, to examine the plans the inspectors keep of these quarries, that we might direct our course in the right road. I was disappointed in not being able to obtain one of these plans, which would have given the clearest idea of this most extraordinary place. At the entrance the path is narrow for a considerable way; but soon we entered large and spacious streets, all marked with names, the same as in the city; different advertisements and bills were found, as we proceeded, pasted on the walls, so that it had every appearance of a large town, swallowed up in the earth.

The general height of the roof is about nine or ten feet; but in some parts not less than thirty, and even forty. In many places there is a liquor continually dropping from it, which congeals immediately, and forms a species of transparent stone, but not so fine and clear as rock crystal. As we continued our peregrination, we thought ourselves in no small danger from the roof, which we found but indifferently propped in some places with wood much decayed. Under the houses, and many of the streets, however, it seemed to be tolerably secured by immense stones set in mortar; in other parts, where there are only fields or gardens above, it was totally unsupported for a considerable space, the roof being perfectly level, or a plane piece of rock.

After traversing about two miles, we again descended about twenty steps, and here found some workmen, in a very cold and damp place
prop

propping up a most dangerous part, which they were fearful would give way every moment. We were glad to give them money for some drink, and make our visit at this place as short as possible. The path here is not more than three feet in width, and the roof so low that we were obliged to stoop considerably.

By this ~~the~~ time, several of the party began to repent of their journey, and were much afraid of the damp and cold air we frequently experienced. But, alas! there was no retreating.

On walking some little distance farther we entered into a kind of salon, cut out of the rock, and said to be exactly under the *Eglise de St. Jacques*. This was illuminated with great taste, occasioned an agreeable surprise, and made us all ample amends for the danger and difficulty we had just before gone through. At one end was a representation in miniature of some of the principal forts in the Indies, with the fortifications, draw-bridges, &c. Canons were planted, with a couple of soldiers to each, ready to fire. Centinels were placed in different parts of the garrison, particularly before the governor's house; and a regiment of armed men was drawn up in another place, with their general in the front. The whole was made up of a kind of clay which the place affords, was ingeniously contrived, and the light that was thrown upon it, gave it a very pretty effect.

On the other side of this hall was a long table set out with cold tongues, bread and butter, and some of the best Burgundy I ever drank. Now every thing was hilarity and mirth; our fears were entirely dispelled, and the danger we dreaded the moment before, was now no longer
thought

thought of. In short, we were all in good spirits again, and proceeded on our journey about two miles further, when our guides judged it prudent for us to ascend, as we were then got to the steps which lead up to the town. We here found ourselves safe, at the *Val de grace*, near to the English Benedictine convent, without the least accident having happened to any one of the party. We imagined we had walked about two French leagues, and were absent from the surface of the earth, betwixt four and five hours.

After we had thanked the Inspectors and guides for their very great civility, politeness and attention, we took our leave to visit the English Benedictines convent, in whose court yard, and within a few yards of their house, the roof of the subterraneous passage had given way, and fallen in the depth of one hundred and ninety three feet.

Though there were some little danger attending our rash expedition (as some people were pleased to term it) yet it was most exceedingly agreeable, and so perfectly a *nouvelle scene*, that we were all highly delighted, and thought ourselves amply repaid for our trouble.

I regretted much that I did not take a thermometer and barometer down with me, that I might have had an opportunity of making some remarks on the temperature and weight of the air. Certainly, however, it was colder at this time than on the surface of the earth. But Mr. Smeathman informed me, that when he descended the last winter, in the long and hard frost, he found the air much more temperate than above ground, but far from warm.

Neither,

Neither, however, had he a thermometer with him. I lamented too that I had not time to make more remarks on the petrefactions, &c.

Mr. Smeathman observed, that when he descended, he found a very sensible difficulty of breathing in some of the passages and caverns, where the superincumbent rock was low, and the company crowded. This no doubt was much increased by the number of persons and of wax lights, but he does not apprehend that the difficulty would have been so great in rooms of equal dimensions above ground. We remarked too, when we descended, that there was in some degree an oppression of respiration throughout the whole passage.

There were formerly several openings into the quarries, but the two I have mentioned, viz. the *Observatory*, and the *Val de Grace*, are, I believe, the only ones left; and these the inspectors keep constantly locked, and rarely open them, except to strangers particularly introduced, and to workmen who are always employed in some part by the King.

The Police thought it a necessary precaution to secure all the entrances into this cavern, from its having been formerly inhabited by a famous gang of robbers, who infested the country for many miles round the city of Paris.

As to the origin of this quarry, I could not, on the strictest inquiry, learn any thing satisfactory; and the only account I know published, is contained in the *Tableaux de Paris Nouvelle edition, tom premier, chapitre 5^{me}. page 12^{me}.*

“ Pour batir Paris dans son origine, il a fallu
 “ prendre la Pierre dans les Environs; la con-
 “ sommation

“ sommation n'en a pas été mince. Paris s'a-
“ grandissant on a bâti insensiblement les Faux-
“ bourgs sur les anciennes Carriers, de sorte
“ que tout ce qu'on voit en dehors, manque
“ essentiellement dans la terre aux Fondement
“ de la Ville ; de la, les Concavités effrayantes,
“ qui se trouvent adjointes hui sous les maisons
“ de plusieurs quartiers ; elles portent sur les
“ Abysses. Il ne foudroie pas un choc bien
“ considerable, pour ramener les pierres au
“ point d'ou on les a enlevées avec tout d'effort.
“ Huit personnes ensevelies dans un Gouffre de
“ cent cinquante Pieds de Profondeur, et quel-
“ ques autres accidens moins connus, ont excité
“ enfin la vigilance de la Police, et du gou-
“ vernement ; & de fait, on a étagé en silence
“ les edifices de plusieurs quartiers, en leur
“ donnant dans ces obscurs Souterreins un appui
“ qu'ils n'avoient pas.

“ Tout le Fauxbourg Saint Jacques, la Rue
“ de la Harpe, & même la Rue de Tournon,
“ portent sur d'anciennes Carriers, & l'on a
“ bâti des Pilastrs pour soutenir le Poids des
“ Maisons. Que de matière à réflexions, en
“ considérant cette grande ville formée, & soute-
“ nue par moyens absolument contraires ! les
“ Clochers, ces Voutes des temples, autant de
“ signes, qui disent à l'oeil ce que nous voyons
“ en l'air manque sous nous Pieds.”

“ For the first building of Paris, it was neces-
“ sary to get the stone in the environs, and the
“ consumption of it was very considerable. As
“ Paris was enlarged, the suburbs were insensibly
“ built on the ancient quarries, so that all that
“ you see without is essentially wanting in the
“ earth, for the foundation of the city : hence
“ proceed

" proceed the frightful cavities which are at
 " this time found under the houses in several
 " quarters. They stand upon abysses. It would
 " not require a very violent shock to throw back
 " the stones to the place from whence they have
 " been raised with so much difficulty. Eight
 " men being swallowed up in a gulph one
 " hundred and fifty feet deep, and some other
 " less known accidents, excited at length the
 " vigilance of the Police and the government,
 " and in fact, the buildings of several quarters
 " have been privately propped up; and by this
 " means, a support given to these obscure
 " subterraneous places, which they before
 " wanted.

" All the suburbs of St. James's, Harp-street,
 " and even the street of Tournon, stand upon
 " the ancient quarries; and pillars have been
 " erected to support the weight of the houses.
 " What a subject for reflections, in considering
 " this great city formed, and supported by
 " means absolutely contrary! These towers,
 " these steeples, the arched roofs of these tem-
 " ples are so many signs to tell the eye, that
 " what we now see in the air, is wanting under
 " our feet."

On the voluntary Power which the Mind is able to exercise over bodily Sensation. By Thomas Barnes, D.D.

[*From Memoirs of the Literary and Philosophical Society of Manchester.*]

THE mutual action of the body and the mind upon each other is felt every moment. The knowledge of the nature, effects, symptoms, and measures of these reciprocal influences, forms no inconsiderable part of the science most necessary to the physician, the moralist, and the divine. It enters deeply into every study, of which either body or mind is the professed subject. And whatever difficulties may attend our inquiries, in the way of mere theory and speculation—difficulties which arise from the narrow limits of the human faculties, and from the absurd attempt to investigate the essences, rather than the operations of nature—yet we may acquire from *experiments* and *facts* a knowledge, clear in its evidences, certain in its principles, and important in its application.

The question which I have proposed to consider, “Whether the mind has any kind of voluntary power over bodily sensation,” is not merely speculative. It must be determined by an appeal to facts; and its influence is, in a high degree, practical and interesting.

Sensation

Sensation is generally defined to be—"A perception in the mind, excited by means of the organs of sense, independently on the will." Thus, when my eye is open, external objects make an impression; nor is it in the power of my mind, if the organ is sound, to exclude the vision. In like manner, the touch, the taste, the smell, produce their correspondent feelings, which the mind passively receives, because it is not able to repel them. If this be true of pleasant, it is still more true of painful sensations. Over these it is said the will has no control. Sense will be sense; and pain will be pain, notwithstanding all our endeavours to blunt the acuteness of the one, and the anguish of the other.

This sentiment, though true to a certain point is not however so absolutely and invariably true, as to admit of no limitation. Many strong facts prove, that the mind is not so entirely the slave of sense, as to have no power at all to suspend, or, at least, to moderate its impressions. In many instances she is able to exercise some measure of that regency which her nature and office authorise her to maintain over her material and mortal partner.

Sensation itself is probably different in different persons. It depends on the state both of the bodily organs, and of the percipient mind.

It is therefore varied by age, by culture, and by every circumstance which can affect the temperament either of the mind or of the body. Some systems are naturally more irritable; others more firm. In some, all bodily impressions are extremely pungent; in others, comparatively languid.

languid. The same habit is probably not equally disposed, at all times, to the endurance of pain. The temper of the mind, and the state of the nerves, admit of so much inequality, that it may demand much greater fortitude to suffer calmly, at one period than at another.

In general, whatever fixes the mind in *intense thought*, or rouses it to *strong passion*, makes it less sensible to organical impression. "How often, says Mr. Locke, may a man observe in himself, that whilst his mind is intensely employed in the contemplation of some object, and curiously surveying some ideas that are there, it takes no notice of impressions of sounding bodies made on the organ of hearing? A sufficient impulse there may be upon the organ; but it not reaching the observation of the mind, there follows no perception."* Effects similar to this almost every person must have experienced. For who has not for a time, forgotten the calls of appetite, the sense of cold, or even the feelings of acuter pains, when his attention has been engaged, by an interesting story, an affecting oration, or an agreeable amusement? Of this absence of mind, and of an inattention to bodily wants arising from it, many curious instances are given in the Life of Sir Isaac Newton. Buried in profound meditation, that great philosopher, we are told, often remained for many hours together beyond the regular time of sleep, and of meals, equally insensible to the demands of food, and of rest; and sometimes ignorant whether he had eaten or not.

But

* Essay on Hum. Und. Lib. II. Ch. 9: § 4.

But these effects are still more conspicuous, when the mind is roused to *strong emotion*: for *passions* of almost every kind produce a momentary pause of sensation. How many instances have there been of persons under severe fits of the gout, who upon some sudden alarm, have entirely lost the present sense of pain, and have made exertions, which, in their crippled state, would have been thought impossible? I cannot resist the impulse of mentioning, to the honour of a British tar, the strong effects which the love of his country, and the spirit of his profession, upon the late gallant *Admiral Saunders*. He had been for some time laid up under the extreme debility and languor, which often attend that excruciating disease. A friend calling one day to see him, found him, to his great astonishment, standing to wash himself in his shirt sleeves, with all the marks of perfect health and agility! Upon enquiring into the cause of this sudden change, the admiral exclaimed, "I have received an order from government to take the command of a fleet against the Spaniards, and I will not come back again without striking a blow."—This order was in consequence of the dispute relating to the possession of Falkland's Islands, in 1771. The powerful excitation of this animating appointment gave, for some time, a new spring to the constitution of the brave veteran, and procured him a truce from the miseries of his situation. But soon after, the rumours of war dying away, the admiral sunk down again into languor and disease.

In this instance, the effect was of some continuance, because the passion called into exercise was of a lasting nature. There was a great object

object before the mind, which continued to stimulate its energies for a considerable time. In that most humiliating and affecting of all human calamities, the loss of reason by madness, the feelings of sense seem to be almost entirely extinguished. The scourge and the knife appear to be equally unfelt. The sense of hunger and of cold is suspended: Providence having kindly ordained, that where the moral influence of pain cannot be enjoyed, its anguish shall not be endured.

Violent passions of every kind, during their continuance, produce this effect, of sheathing the pungency of sensation. Fear and hope, joy and sorrow, when strongly excited, equally bring on a temporary insensibility: so that a person shall receive blows or wounds, without feeling them. How plainly does this appear in children, who, in anger, or in play, will endure unmoved, what would otherwise be felt with the most exquisite keenness? In some places the common expressions of sorrow are, to beat the head, to tear the hair, and in Otaheite to strike sharks teeth deep into their flesh, thus inflicting wounds, the marks of which appear with indelible impression.

But though all the passions have equally a benumbing power, whilst their paroxysms continue, yet the effects produced, by them afterwards on the system, with respect to the acuteness of sensation, are widely different. Some passions depress the mind, weaken the tone of the spirits, and render them feelingly alive to every touch. Thus, fear, and sorrow, after their first violence is spent, unbrace the nerves, give acuteness to pain, and often convert indif-
position

position into disease, and anguish into agony. Other passions, on the contrary, induce a firmness, a tension, a vigour of soul, which enable it with greater advantage to repel the shootings of pain, and the impulses of appetite. Thus, love and joy leave behind them a succession of pleasurable and fervent emotions, which, settling into habit, still continue to diminish the influences of sense upon the elastic spirit.

In all these instances the power of the mind over sensation is, if at all, but imperfectly voluntary. The passions are often excited, without the previous energy of the will. They rise from sudden and unexpected causes. But the question before us was principally intended to ask—"Whether the mind has a direct and
 " immediate power of diminishing sensation, by
 " its mere volition. Can it, by its own energy,
 " summon a degree of strength and elasticity,
 " which shall, in any measure, lessen the per-
 " ception of sensitive feeling!"

Numerous instances seem to prove the affirmative. For how many persons have, with the full view of pain and suffering before them, resolved to brave their utmost rage; and by means of that resolution, have really suffered much less than they would otherwise have done? How many who have enjoyed composure and calmness amidst the severest tortures? The examples of Mutius Scævola, and of Portia, are well known. In both the mind seems to exert a degree of direct control over the sense of pain, and by its own volitions so far to weaken it, as to endure with apparent calmness what would to many appear impossible for human nature to support.

We

We smile, indeed, at the pompous and unnatural grimace of an old Stoic, crying out, "O pain, I will never acknowledge thee to be an evil." The attempt to annihilate, or to despise sensation, is doubtless much too high; and, in this degree borders upon frenzy. But ought we not, at the same time, to admire the heroism of a mind struggling to maintain its liberty, its peace, its self-command, and endeavouring to arm itself by rational and moral influences, against the tyranny of appetite and of sense? And would not this Stoic, who, convinced that it was in his power not to be overcome, is resolutely determined not to yield, feel less pain, than one, who, with a puny and timid spirit, endeavours to fly from the enemy whom he dares not meet? Would not this be the case with the hardy Spartan, in whom

"Generous scorn

"Of pain or danger, taught his early strength

"To struggle patient with severest toils!"*

The instances of the firm endurance of torture in the North American Indians, would be absolutely incredible, if not supported by testimony, which we cannot dispute without the most ridiculous scepticism. If their sensations were originally equal to ours, one is ready to say, it would be impossible to acquire that apathy which they discover in such dreadful circumstances. Let us then ascribe something to natural temperament, to climate, to habit. But shall we not also ascribe something to the manner

* Glover's Leonidas, book I. l. 540.

ner in which they have been accustomed to prepare themselves for such a scene? Does not the idea inculcated upon them from their earliest infancy, that it is cowardly to betray any marks of fear, or to utter any complaint, tend to stiffen the mind against the perception of pain, and to produce some part at least, of this astonishing insensibility?

The Gentlemen of the Faculty, who are present, could doubtless produce many striking facts, in which the resolute energy of the mind has manifested its power over corporeal feeling. One instance, to which many of them were witnesses, they will recollect with pleasure. An old soldier, at the Manchester Infirmary, was a few years ago cut for the stone. During that dreadful operation he uttered no complaint, but appeared calm and cheerful; and as soon as it was over, insisted a long time upon "walking to his apartment, *for the honour of an old soldier.*" Did not that sense of honour stupify, in some degree, the sense of pain, by inspiring that heroism and valour which are the soldier's highest characters on the field of battle?

Let us behold a Spanish Devotee, upon some solemn occasion, lashing his bare back through the streets with a severity which almost covers him with blood; and when in the presence of his mistress, redoubling his strokes with astonishing fury seeming to feel a glow of conscious triumph in proportion to the number of his stripes, and the violence of his pain. Or, let us turn our eye to the dreadful penances, incredible fastings, and unmerciful austerities which enthusiasts of all ages, countries, and religions, have voluntarily endured, and which, thus sanctified
and

and sweetened by folly, they have seemed hardly to feel. Who can deny that some power resides in the will, of tempering and diminishing corporeal sensibility?

If such is the power of false religion, we shall justly expect a still stronger and nobler influence from that which is true: nor shall we be disappointed. History teems with instances of those, who, in the cause of heaven, have manifested a firmness, a sublimity, a heroism of soul—I had almost said, worthy of their cause. What glorious and animating spectacles have been seen, of men, of women, even of young persons, meeting agony and death, in every form of horror which cruel superstition could invent, with a serenity, yea even with a cheerfulness of soul which indicated, which demonstrated the sentiment we are now endeavouring to support! We deny not the peculiar aid and presence of heaven in those moments. But we also maintain, that the spirit of true religion at all times a rational, a calm, a manly spirit, tends of itself to diminish the influence of sense, and consequently to sheath the pungency of sensation.

Mental strength, like that of the body, depends in no small degree, upon habit. He who has never been accustomed to exert the authoritative dominion of his will over his senses, will be puny and tender. The calls of appetite will be to him imperious and irresistible. Whilst the man, who has been used to deny these calls, will, with comparative ease, endure the absence of sensitive good, and the presence of sensitive suffering. Hence the superior fortitude with which many of the weaker sex, whose frames seem to be naturally more irritable to pain, endure the most dreadful operations. And

hence too that superior patience which mankind often acquire from the long endurance of affliction.

But whatever judgment we may form upon this question, as to the direct and immediate power of the will over the perceptions of sense,—its indirect and mediate influences cannot be disputed. Whenever we can divert the thoughts to the other subjects, or excite passions of different natures, both of which are certainly in some degree, in the power of the mind, we so far lessen the pangs of corporeal pain. The mere diversion of thought, by whatever means, is of great use. It is probable, that the mind cannot receive two perceptions at the same instant. Every moment, therefore, of such diversion, is a pause from suffering. Or, if it be admitted that they may be isochronous, yet the effect of the one, if of a different kind, will be to diminish the other. If, indeed, both the perceptions be of the same nature; if to the torture of bodily pain, be added the distress of mental anguish; the one compounding itself with the other will exceedingly increase sensibility. Compare the feelings of a person suffering under some violent disease, from the consequences of his own guilt—with those of another person, suffering the same affliction, for the testimony of a good conscience, in the cause of liberty, or virtue!

When sensation is acute, thought will not easily be diverted. A stronger gale of affection, or of passion, will be necessary to turn it from its course. And we have already said, that passions of every kind, whilst they continue in their strength, are able to produce this effect. For the moment there is little difference between

joy

joy and sorrow, anger or fondness. The sudden coming in of a friend long unseen, or an alarm for his safety, if we saw him in the instant of danger, will equally suspend corporeal feeling. The tooth-ach shall fly away at the presence of the operator, or at the tidings of some happy event. A man, in the paroxysms of rage, shall be as insensible to wounds and pain, as the pious martyr at the stake.

But let us pass on beyond the moment of vehement excitation, and then how great the difference! Among the passions, we must first distinguish those which are of the longest continuance; because these will produce the longest, and consequently the greatest, effects. Anger and fear are short-lived impulses. And, when their violence is spent, they induce languor and depression. Hence, though sensation may be suspended by them for a moment, it will soon return with double pungency. On the contrary, love, joy, and hope are passions which live longer in the human breast, which leave behind them a firm and animating feeling, and which, therefore, may be expected to produce effects more lasting and important.

Again, we may distinguish those passions which center themselves in a narrower, from those which expand to a wider, circle—the selfish from the generous and sublime. Those of the former class, after their first agitation, are so far from blunting the sense of pain, that they irritate and increase it. Thus fear and sorrow turn the mind inward upon itself, and aggravate all its painful sensibilities. Anger, which partakes of the nature of fear and of grief, and is like them selfish, has the same consequences. It

makes the mind fore and irritable, and thus whets the edge of suffering. Love and gratitude, on the other hand, center the heart on other objects; and if those objects are great and amiable, and worthy, inspire sublimity and strength. Thus during their whole continuance, they render the mind less passively the slave of bodily impression. What has not parental affection done, what has it not endured for the support and defence of its offspring? How amazingly, long has it defied danger, and despised suffering, in such a cause! What has not the love of country voluntarily consented to endure!

The sublimest feelings which can govern the human heart, are those inspired by Religion. For religion carries the soul beyond itself, and centers all its strongest affections upon our Creator, and a better world. If these be properly, that is, habitually felt, they will be most friendly to that self-possession which braces the mind in all its best and most lasting energies. These feelings are permanent in their nature, and large in their object. And how wonderful are often their effects! In that most awful hour of dissolving nature, when the body is racked with expiring agonies, faith and hope have often presented the most astonishing spectacles of fortitude, yea even of triumph! The mind, borne upwards towards its Maker, has been able to smile in pains, and to exult in dissolution.

The moral influence of this sentiment is highly interesting and important to us all. It furnishes an argument in favour of virtue and religion, too considerable to be passed over in silence. For goodness not only inspires the purest satisfactions both in the present moment and in
future

future reflection, but it actually lessens the degree of bodily suffering. It not only increases the mental enjoyment, but it diminishes corporeal pain. It not only administers the sweetest consolations under disease, but it renders the disease itself less afflictive.

Born into a world exposed to sorrow, and inhabiting bodies liable every moment to various sufferings, of what value is it to have our minds in a condition able to sustain, and even to mitigate the sharpness of corporeal feeling! Of what importance is it to possess a spirit firm, vigorous, manly! And of what moment to act under the direction of those principles, and under the impulse of those affections, which tend to produce self-possession and inward strength!

In order to this, it will be necessary to cultivate the habit of self-command. It will be proper to accustom the will to a dominion over sense. And it will be wise to cherish those affections, which carry the mind beyond itself to objects permanent and noble.

Stoicism, which affected to secure to its votaries an exemption from evil, and which, in order to this, denied that corporeal pain deserved the name, not only took its aim too high, but omitted the proper means of achieving what it is possible to attain. It enjoined resolute self-denial, it established the dominion of mind over sense. But it did not expand or elevate the passions to their noblest objects. Hence, it failed in its effect. For it will follow from what has been observed, that a mind which would be firm, must be humble. Pride may be indeed a lasting passion—but it is selfish. And there are

many moments in the present life, when the high sense of dignity must yield to humiliating circumstances, to the consciousness of weakness, and of ill desert.

But the nobler passions, which we have before mentioned, improve by time, and meliorate by habit. The soul, whose better affections are centered upon proper objects, increases in inward strength; it is better fortified against distress and pain; and it is ripening for a world, where pain and anguish shall annoy it no more for ever.

*A Plan for the Improvement and Extension of
Liberal Education in Manchester. By Thomas
Barnes, D. D.*

*[From Memoirs of the Literary and Philosophical
Society of Manchester.]*

IT is to the honour of the present age, that it has extended the empire of *science*, and of the arts, so far beyond its antient boundary. The spirit of literary enterprise has gone forth, and has already won large domains from the regions of darkness. It would be matter of wonder, and of lamentation, if, in a period so distinguished, education, which holds so high a rank, both as a science, and an art, should not have received some share of the general improvement. But who will deny, that much has been already done, to render the benefits of liberal culture more diffusive and more successful? Much as we lament, that the object and aim of many parents should be so low; much as we despise many of those frivolous embellishments which are esteemed the grace and finishing of modern—modish—education, still we must acknowledge with pleasure, that considerable advances have been made, and that young persons now enjoy many assistances in mental cultivation, unknown to their progenitors. The general sentiment of the influence and moment of superior education, is now almost universally adopted. And nothing,

thing, we are confident, is necessary but to produce a well conceived and useful scheme, in order to secure the most honourable patronage, and the most liberal encouragement.

There yet remains one *desideratum* in Education, which many parents would be happy to see supplied, upon an unexceptionable plan. The stage which passes between a *school* and *business*, is often a very distressing one to a parent, and an useless, if not a dangerous one, to a young man. He has passed through the common forms of classical institution. He is rather too old to continue to pace round the beaten track of a grammar school; and yet he is too young to be trusted abroad in the world, as his own master. Add to this, that his education, thus far, has been too confined and imperfect to answer its noblest ends, of giving a true enlargement and direction to his ideas, and of producing a proper taste for general and important science.

What shall be done to fill up this awkward, and yet unspeakably interesting, chasm of life? —It is beyond measure desirable, that it might be filled up with the pursuit of knowledge, in some line, so as to assist and adorn all his future progress.

Every respectable tradesman must have in his view the idea, of sometime retiring from, or at least of lessening the multiplicity of cares and attentions which now press upon him. The decline of life seems to call for respite and consolation. But how shall this recess from business be supported without some taste for letters? I cannot figure to myself a more miserable situation, than that of one who retires from the hurry of the world, yet has no furniture of mind
to

to grace or to sweeten his retirement? Unqualified for every liberal and superior entertainment, he will probably sink down into languor—intoxication—and lethargy.

It is the natural, the laudable wish, of every parent, whom the blessing of Providence has raised to any degree of affluence, that his son may appear in the world with character and accomplishments, worthy of the respectable line, into which his father's fortune may introduce him. Mere money, without knowledge or virtue is contemptible and mischievous, in exact proportion to its amount. He must have amusements and companions. But these will be of the lowest and most degrading cast. His money, however, he will deem sufficient to give him self-consequence. With flatterers, with the mob, it may. But destitute of the best possessions, he will be an object of contempt to all men of sense—and of compassion to every man of humanity and seriousness.

Without throwing the most distant reflection upon that plan of classical education, which generally, and in my idea, very properly obtains at our common schools, no one will imagine that the knowledge there acquired is sufficient to improve and adorn the mind in all its future stages. Such knowledge must be scanty, and undigested. There will be some shining particles, probably mixed with a large quantity of alloy. Language is merely the scaffolding of science. The shreds and fragments of sentiment, which a boy picks up, in conning over the Latin and Greek authors, are not surely deserving of the name of regular and systematic science. And yet, without something of system and regularity, ideas float in the head in unformed masses, without method or arrangement.

The

The boy who excels in one branch, the knowledge of languages, may appear manly. The man who has gained no more, must appear a boy. He that does not add general science to professional knowledge, is a mere pedant. And he who has not looked abroad from the Greek and Roman classics into the other branches of a polished and extensive education, knows but little of what is either most truly ornamental or useful. But *where* shall that higher and more finished knowledge be obtained?

Here a boy must stop short—When, from names and words, he should rise to *things*, he is plunged immediately into the vortex of business—and from that moment, almost the whole of what he had been so many years in learning, is forgotten. At least, little remains but the withered scraps of knowledge gleaned in his school. All the science which a boy of an ingenuous turn acquires *after this*, must be acquired without assistance. He has no preceptor to direct him; he has no regular system to pursue; his walks into the different ranges of literature must be desultory, solitary, and uncomfortable.

For *where* shall this knowledge, or this taste be obtained?—In a college, or university?—But there, the expence deters: the danger terrifies. Numbers of young men, many of them irregularly educated, flushed with money, with consequence, with passions, too often corrupt one another, and induce fatal habits of extravagance, dissipation, and indolence—habits, entirely inconsistent with the sobriety, frugality, and attention necessary to future success and reputation, in any line of life—and above all, in *business*.

Hence

Hence it is, that so very few of those young men, who are destined for trade, enjoy any advantages beyond those of a grammar school.

It is granted, that the examples are too rare, of those who have united the manners of the Gentleman, the taste of the Scholar, and the industry of the Tradesman. Yet such examples have been seen, and may still be seen among us. For who will say that they are incompatible? or who would not wish that his son might exhibit so fair, so amiable an assemblage of excellence? Perhaps, one reason why they are so uncommon may have been, that those places of education which tend to form the Gentleman and the Scholar, have been unfriendly to the habits necessary to the Tradesman; whilst the warehouse, in which the Tradesman receives his mercantile mould, is, perhaps, equally unfavourable to superior ornaments. But would it not be possible that the advantages of both should be combined together? In the house of a parent or respectable master, and amidst general habits of business, a young man who should continue to devote some part of his time to study, would not be so much refined, as to be unfit for commerce. And, perhaps, the happy art might be learned, of *connecting together liberal science and commercial industry*. If the scheme appears visionary, yet it deserves a trial. It is, indeed, as far as I know, *new*. I have never heard of a similar establishment. But it might easily be dropped, as soon as it appeared not to answer the ends of its institution.

A plan of this nature in a large town, it does not appear difficult to me to form, or to execute, if there were a general conviction of its utility,
and

and a proper encouragement for undertaking it. This course of study should not, I think, be a mere continuation of that of a school; but, the application of school learning to superior objects. Those objects would probably be, Natural Philosophy, the Belles Lettres, and Mathematics; together with some attention to History, Law, Commerce, and Ethics. There are gentlemen in this town, sufficiently eminent in these various departments of science, to lecture upon them with reputation and success. One part of a college plan must indeed be dropped—that of living together in common apartments. But probably the omission of this would not be deemed a loss, by those who know the temptations which often attend it. All the advantages of literary improvement might be here enjoyed.

A very important part of the plan would be a course of lectures upon *Natural Philosophy*, in its extended sense, which should pay a very particular attention to *Chemistry*, and *Mechanics*, because of their intimate connection with our manufactures.

In addition to these, Courses of lectures upon *History*, *Commerce*, *Jurisprudence*, *Criticism*, and *Ethics*, together with the whole range of the *Belles Lettres* might, I persuade myself, be of essential service.

If with these were combined some continued attention to *languages*, antient and modern—and to *Mathematics*—the scheme would be filled up in a manner highly respectable and useful.

Some establishment of this nature seems wanting, to complete the many advantages for education, which are already enjoyed among us. Perhaps few places can boast of greater advantages

tages for the education of boys, in the first rudiments of school learning. Our more public and more private schools have justly obtained a very considerable celebrity, not only at home, but abroad. If, to so fair a foundation could be added a superstructure equally excellent, the whole edifice would appear complete, strong, and noble.

A scheme like that we are now sketching, might serve as a very agreeable preparation for those who are designed for the *learned professions*, by opening their way to those more profound and systematical instructions, which they would afterwards receive, in our more public and celebrated institutions. And to those Gentlemen designed for the *commercial* line, it would be abundantly sufficient, in order to give that general insight into science, which might answer the noblest purposes of mental cultivation.

We have already mentioned, the intermediate stage, between a school and business, as often an useless, if not a dangerous one for youth. And yet who would scruple to say, that more depends upon this period, as to the formation of manners, of habit and of future character, than perhaps upon any other part of life, of equal duration? In this period, from fourteen to seventeen or eighteen years of age, the transition is made from boyishness to manhood. The company, the taste, the plan of future life are now generally established. In this spring, you behold the blossoms, you prognosticate the fruit. A boy, before the age of fourteen, very seldom sees the end towards which he is going. After that age, he begins to observe the point he should aim at: and not unfrequently he gets more of real knowledge, and of the proper bent and direction

direction of the mind, in two or three years after that period, than in all that have preceded it.

But what shall a young man do, during this important interval? Shall he stay at home? But here, probably, is no object before him to fix, to entertain, or to improve his mind. He is in danger, therefore, of falling into listlessness and languor; of flying from this inactivity, so irksome to the sprightliness of youth, into improper and dangerous connections; or of seeking for amusement in gay company, the consequence of which is, dissipation and ruin. Hence, the trembling parent often finds himself obliged to send his son abroad into the world, though ever so desirous to keep him longer under his own eye, because he is sensible he is losing time, and in danger of contracting habits of indolence, or of vice.

And even after a young man is engaged in business, there are many long evenings, and many hours of avocation, which might be usefully and agreeably filled up. Shall all the labour of so many years as have been spent at school, be lost and buried in everlasting oblivion? Shall so much pains have been taken, in laying a foundation, and in erecting scaffoldings, and shall the mind never rise from thence to the higher regions of literary improvement? Shall a boy close his school books, and from that moment never open them again? Shall he bid farewell to study, and condemn the labour and difficulty which he underwent in the stage of youth, merely because he has not learned to apply the knowledge he there gained to its noblest end?

It

It is indeed argued by some, "That science and business are incompatible; and that a taste for the one, almost necessarily disqualifies a man for succeeding in the other." But surely a taste for knowledge is not half so detrimental as that rage for pleasure, which so universally, and almost necessarily prevails, where a better relish has not previously been formed. Would not a taste for manly knowledge be a noble antidote against the allurements of corrupting pleasures? Would a young man be in so much danger of being drawn aside into conviviality, or fashionable amusements, if he had a rational and agreeable entertainment at home; if he could retire from his warehouse, and relieve his jaded spirits by some animating study, and thus set a finer edge upon his mind again, blunted and worn down by intense application?

It is plain that many of our tradesmen, the most industrious and successful, have many hours of avocation. Human nature could not endure a perpetual screw to business, without relaxation. Might not these hours be often filled up much better, more honourably, more usefully, more happily, than they commonly are? Would mental cultivation, to a certain point, interfere with the necessary demands of business? I know, it is generally thought so. But is it true in fact? Shall we be told, "That most of our eminent tradesmen rose from low beginnings by unremitting industry, whilst those who set out with fairer fortune and prospects, made comparatively little progress?" But is not the reason of this, that our young men, instead of forming a manly and cultivated taste, fell into company and habits, which effectually dissipated their

their minds, and unfitted them for proper attention to any important object whatever?

But, "There have been young men too bookish for a warehouse.—It is granted. But it is probable, they never had a proper turn of mind for business. Their parts were wrong cast. They should have been brought up to some liberal profession more agreeable to their genius. They were probably obliged to enter upon a line of life not correspondent to their ruling passion. No wonder, they did not succeed!

The object to be aimed at is, To give a boy in these intermediate years, to which alone our plan extends, that degree of knowledge and of taste, which may make him more than the *mere man of business* in future life. The point to be avoided is, The giving him views, habits, and taste, which may be *unsuitable for a man of business*, and which he would have to unlearn again when he came to settle down to the regular routine of a warehouse.

How far it would be possible to gain this advantage, and to avoid this disadvantage, is a point of the utmost concern to determine. Might not a boy, for some years after he has been introduced into business, have some intervals allowed him, which might be sufficient for the cultivation of his mind? Is it necessary that, the moment he enters a warehouse, he should lay down this maxim—"I must now give every moment to trade—I must have but one object—I must give up books, knowledge—and every thought but *one*, that of getting money?"

And even admitting that there were some competition, such as is asserted, between literature and merchandize; if the plan we are recommending should in any degree interfere with an unremitting

unremitting and excessive attachment to business—is it necessary that business shall be followed upon this slavish and degrading plan, to the exclusion of every idea but that of gain? Might not something be abated of this over-plodding diligence, and yet the mind, even granting some diminution of fortune, be, upon the whole, an unspeakable gainer?

It would certainly be a high honour, as well as an unspeakable advantage to this rising and opulent town, to have within itself an institution which would proclaim its taste, as well as its affluence. It would be a laudable ambition to aspire after a literary, in addition to that mercantile reputation, by which it is already so greatly distinguished.

The Society, to which I have now the honour of addressing myself, has added no small degree of respectability in the eyes of our fellow-countrymen, and even of foreigners. They have seen, with pleasure, a set of Gentlemen rise up, in the midst of a place devoted to commerce as the friends of *literary* and *philosophic* excellence. An institution, such as I am now recommending, would strengthen that favourable impression, by declaring to the world, that increasing wealth is accompanied with its rare, but honourable attendant, increasing wisdom—and, that those, whose sagacity and industry have been able to extend the manufactures, are equally desirous of extending the best improvement and embellishment of their country. It would contradict the disgraceful idea, that a spirit of merchandise is incompatible with liberal sentiment, and that it only tends to contract and vulgarise the mind.

P

But,

But, Gentlemen, in order to the success of this plan, it is necessary that it come before the public *under your patronage and protection*.—That these imperfect outlines be improved and filled up by your maturest deliberations—That different Gentlemen shall engage in different departments—And that the scheme be prosecuted with vigour, with harmony, and with perseverance.

Under such a sanction, and with such advantages, it could not fail of success. Perhaps it might become in the course of years, like a rill, swelled in its progress by successive tributary streams, a noble torrent, and enrich and adorn the country all around.



F I N I S

